Environment for Multi-Media Interactive Instruction (EMMii) Users Manual

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14. ABSTRACT (Maximum 200 words):

This report documents the Environment for Multi-Media Interactive Instruction (EMMii), the training management system used in the Battalion and Brigade Battle Staff Training System (BSTS). BSTS, a set of functional area training packages for battalion- and brigade-level staff officers, is a combination of text and computer-based instruction (CBI). Sponsored by the Advanced Research Projects Agency (ARPA), the BSTS was developed for use by the U.S. Army National Guard (ARNG). These prototype BSTS comprised 13 courses for training staff officers in individual functional areas and those tasks required to prepare staffs for collective battle staff tasks.

This report is for archival purposes only; the EMMii is not available as a stand-alone product.

15. SUBJECT TERMS

Battle Staff Training System (BSTS)   Environment for Multi-Media Interactive Instruction (EMMii)
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ENVIRONMENT FOR MULTI-MEDIA INTERACTIVE INSTRUCTION (EMMii) USERS MANUAL

The Army Research Institute (ARI) Infantry Forces Research Unit has over the past several years conducted a program of research designed to improve training and performance for battalion and brigade staff officers. The prototype programs, Battalion-Battle Staff Training System (BN-BSTS) and Brigade-Battle Staff Training System (BDE-BSTS) were conducted under the sponsorship of the Advanced Research Projects Agency (ARPA), with the majority of the work being performed by BDM, Federal, Inc.

The BSTS was designed to address identified deficiencies in staff functional area training for maneuver battalion and brigade staff officers. Recognizing that the need for such training was especially critical for the Reserve Component, ARPA and the U.S. Army National Guard (ARNG) supported the development of the prototype BSTS for experimental application by the ARNG. BSTS is part of the Simulation in Training for Advanced Readiness (SIMITAR) advanced technology demonstration.

The BSTS are parallel sets of thirteen doctrinally-based training packages for staff officers, a mixture of text and computer-based instruction. The training includes interactive software and paper-based materials for the Executive Officer (XO), S1/Chaplain, S2, S3, S3-Air, S4, S5 Civil Military Officer, Fire Support Officer, Signal Officer, Chemical Officer, Engineer, and Air Defense Artillery Officer. The Common Core Course, at both battalion and brigade, provides information used by all staff officers. Battalion and brigade BSTS courses are similar, but tailored to the respective levels.

The BSTS programs were designed to be run on a 486 PC, in a Windows environment, with CD ROM. The programs also include training management software and introductory tutorials. Each course module provides core material necessary for the officer to function in the assigned staff position. There are diagnostic pretests, practical exercises, within topic quizzes, and a final examination to measure progress and provide feedback. Also available are help screens, and an on-line glossary. The BSTS allows the staff officer to train at his own pace at home, in the unit, or at the armory.

The BSTS incorporates an embedded training management system, the Environment for Multi-Media Interactive Instruction (EMMii). EMMii is the enabling environment for multi-media computer based training (CBT) development and delivery. EMMii records student/lesson performance data and assists trainers in the management of curriculum, materials, and students, through automation of training administration. EMMii uses commercial off-the-shelf software, Microsoft Windows for Workgroups™.

This manual, <u>EMMii User's Manual</u>, is provided to a unit when it receives BSTS training materials, as a part of new equipment training. However, as an overview and reference, it is a useful stand alone product to document the overall training management system.

Environment for
Multi-Media Interactive Instruction
(EMMii) Users Manual

1 July, 1996

U.S. Army Research Institute
Infantry Forces Research Unit

EMMii USER'S MANUAL FOR THE ARMY NATIONAL GUARD

EMMii USER'S MANUAL FOR THE ARMY NATIONAL GUARD (Concl.)

CHAPTER 1 -- INTRODUCTION

The Training Management System (TMS) used in the Army National Guard (ARNG) Computer-Based Training System was derived from a commercially available product known as the Environment for Multi-Media Interactive Instruction (EMMii). EMMii is an enabling environment for multi-media computer based instruction (CBI) development and delivery. EMMii has been modified to meet the requirements of the ARNG programs. Rather than refering to TMS, this document will refer to EMMii. The goals of the EMMii are:

- To allow students to proceed at their own pace and to refresh themselves as necessary,

- To automate the administration of training,

- To provide on-line testing,

- To record student/lesson performance data in an accessible form for review and analysis by researchers and leaders,

- To acquire data about the lessons themselves.

EMMii uses commercial off-the shelf (COTS) software integrated into a system that allows trainers and administrators to make good use of the specific functionality of the packages. The Microsoft Windows™ environment provides a familiar look and feel across the packages.

This document provides first-time users with an overview of the system's functionality as well as providing long-time users with detailed information on the use of the system. This chapter provides an overview of the hardware and software used in the system and the functions of each. Chapter 2 takes you through a typical startup through delivery scenario. Chapter 3 explains operation of the Training Information System (TIS) that is the mainstay of the system. There are also appendices that provide additional references and details.

SECTION 1.1: EMMii HARDWARE AND SOFTWARE

Figure 1-1 illustrates the hardware architecture for this system. The EMMii computers are all 486 or Pentium PCs, attached through a Local Area Network (LAN) or modems communicating via Windows for Workgroups™ (WFW). There is only one Manager PC, which resides at the armory. There are numerous Student Stations, most of which are used at home by the students and which can be connected to the Manager PC via a modem. By using a "Net Modem" at the armory, a student at home, using a normal modem, appears to the system as if he or she were on a LAN connected to the Manager PC. It is also possible to have a LAN at the armory and have student stations connected via the LAN. The two configurations present very few differences to their users.
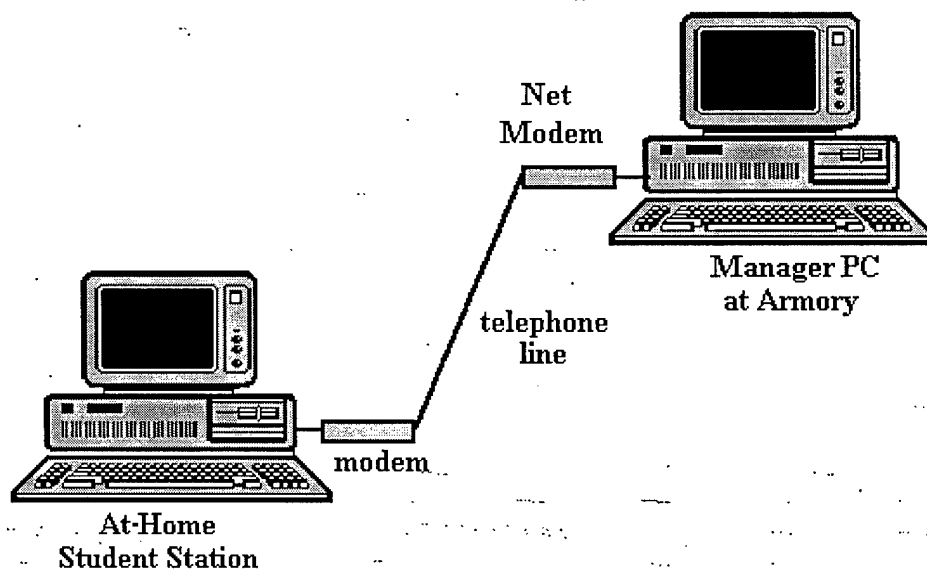
Figure 1-1   EMMii Hardware Architecture

The Manager PC is attached to a Net Modem that allows users to dial-in and appear as if they are on a LAN. It also contains the Training Information System (see below). It should have at least 12 Mb of memory and 500 MB of disk space. Other features such as a printer or additional software may prove useful. The Manager PC can also be used to run courseware if it has the necessary software and hardware configuration.

Each at-home Student PC has at least 200 Mb disk space and 8 Mb memory. In addition, each is equipped with:

- A 256 color video card and compatible monitor
- An Action Media II™ card (for full motion video)
- A 16 bit Sound Card and speakers
- A CD-ROM drive
- A modem.

These features are required in order to play the CBI developed for the ARNG. The primary software (S/W) on the Student Stations is

- EMMii Student Station S/W
- IconAuthor Present™
- Open Database Connection (ODBC™)
- The Student Database.

EMMii consists of two main functional pieces of software:

- Training Information System (TIS) - This is the database on the EMMii Manager. It maintains data on lessons, subjects, courses, student histories, schedules, etc. for administrators, instructors, and authors.

- Student S/W- This software allows the student to log in and then manages the student's access to lessons. It ensures that student exam data and questionnaires are posted to a local database (the Student database). It also allows the student to connect to the Manager PC (or "Host") in order to post exam results, questions, etc. to the database at the armory.

SECTION 1.2: OVERVIEW OF OPERATIONS

The essential scenario addressed by EMMii can be viewed sequentially, from development of courseware, though the collection and retrieval of results. This section provides an overview of how EMMii works from the viewpoint of various users. Later sections provide more details on the individual functions.

1. A CBI author develops a multi-media "lesson" using IconAuthor (IA).[1] This CBI consists of numerous files.

2. The lesson becomes part of the curriculum when data about it is entered into the TIS database. The ARNG curriculum and database are delivered as part of this system. The courseware and its files reside on Compact Disks (CD's).

3. Data on individual students (phone number, name, etc.) are entered into the TIS database. The students are registered and scheduled for their courseware via the TIS at the armory.

4. The student takes the required CD(s) containing the courseware and a disk with a local database home, where he or she can take the lessons in the schedule.[2]

5. When the student "logs in" to the student station, he or she is presented with a list of the lesson(s) scheduled. The student can then choose which one to take.

6. The lesson itself is the IA courseware developed by the CBI author. As the student progresses, the courseware automatically collects exam and quiz results and the student's "bookmark"[3]. The student may finish the session by using the courseware's "Quit" function or by completing the entire lesson. In addition to exam responses, EMMii automates the administration of lesson assessment questionnaires and collection of responses. The response data and bookmark are retained in a local database on the student's station, called the Student DB.

7. Whenever the student wishes, he or she may connect the modem to a phone and use the EMMii Student S/W to dial the armory, connecting to the Manager PC. The student may then send data from the Student DB to the "Host" DB at the armory.

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[1] These lessons can be run independently (outside EMMii) using IconAuthor's Present. But when run that way, none of the data collection features of the EMMii take place.
[2] CD's may also be used to take lessons at the armory. See Appendix E.
[3] The bookmark is a numerical indicator of the student's progress within the lesson.

8. The Student DB contains not only the student's answers to exam questions, but the pass/fail threshold for the exam(s) and score(s).[4] Thus, the TIS can determine if the student passed each exam.

9. The TIS is a collection of screens and reports (accessible to other PCs in the workgroup) along with a database residing on the Manager PC that allows a user to:

    - Enroll Students
    - Schedule students for lessons
    - Look at the progress of individual students
    - Look at specific answers to questions on exams by individual or across the student population.

There are more details on the TIS in Chapter 3.

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[4] The threshold is provided by the CBI author as part of the development of the lesson.

CHAPTER 2 -- GETTING STARTED

This chapter will get you started. It provides an overview of how the various pieces of EMMii operate and inter-operate. Normal operating scenarios are provided as examples of how the software is used to manage, administer, and maintain courseware.

SECTION 2.1: INSTALLING EMMii

BDM normally performs the initial installation of EMMii, since it requires creation of network nodes, setup of remote database access, etc. The configuration as provided normally has one Manager PC where the TIS and the courseware reside. Any station to be used in the EMMii system must have Windows for Workgroups installed in such a way as to be part of the EMMii workgroup.

Specific instructions for installation are provided as appendix A.

SECTION 2.2: TERMINOLOGY

Throughout this manual we will make use of special terms defined here.

TIS -This is the Training Information System - a database that resides on the Manager PC. It contains data on the curriculum, lists of files associated with lessons, and information on students, their histories, and their schedules. The TIS actually consists of two separate pieces:

- The TIS, which is the screens and reports, and

- The Host database tables, which are the actual data.

It is possible to have more than one set of data (i.e., more than one set of tables) and use the TIS screens, etc. to look at and edit either of them.

Student DB - A small copy of some of the data from the host database. This small database is created with the TIS and then copied to the individual student stations. The student software initially posts data to this database and then uploads data from the Student DB to the Host DB.

Upload - Copying a student's local database to the Manager PC.

Courseware - A complete piece of computer-based instruction, including its assets, such as graphics, text files, videos, etc.

Curriculum - The entire set of training material and its organization. (See Section 3 of this chapter.)

Course - The Course is the highest level of organization within the curriculum. A Course consists of one or more Subjects. (See figure 2-1.)

Subject - The Subject is the second highest level of organization within the curriculum. A Subject consists of one or more Lessons. (See figure 2-1.)

Lesson - The Lesson is the lowest level of organization within the curriculum. A Lesson is a complete piece of courseware and is the lowest level about which the TIS has data. For example, the TIS has descriptions of each Lesson in the curriculum, but will not know (explicitly) about individual topics within a Lesson.

Student S/W - A special set of software that runs on the student's station. It shows the student what the schedule is; lets the student choose what to take; organizes and copies courseware; and stores the results.

SECTION 2.3: THE CURRICULUM

The highest level of organization within EMMii is a Course. A Course consists of Subjects, and the Subjects are made up of one or more Lessons. Figure 2-1 illustrates the organization. The TIS maintains this structure and can use it for assisting in the scheduling of students. For example, if a student were in the course described in figure 2-1, and had completed Lesson11 and Lesson21, normally he or she would take Lesson22 next.[1]

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[1] For the ARNG, students will normally be scheduled for an entire course which they may take in any order they desire.
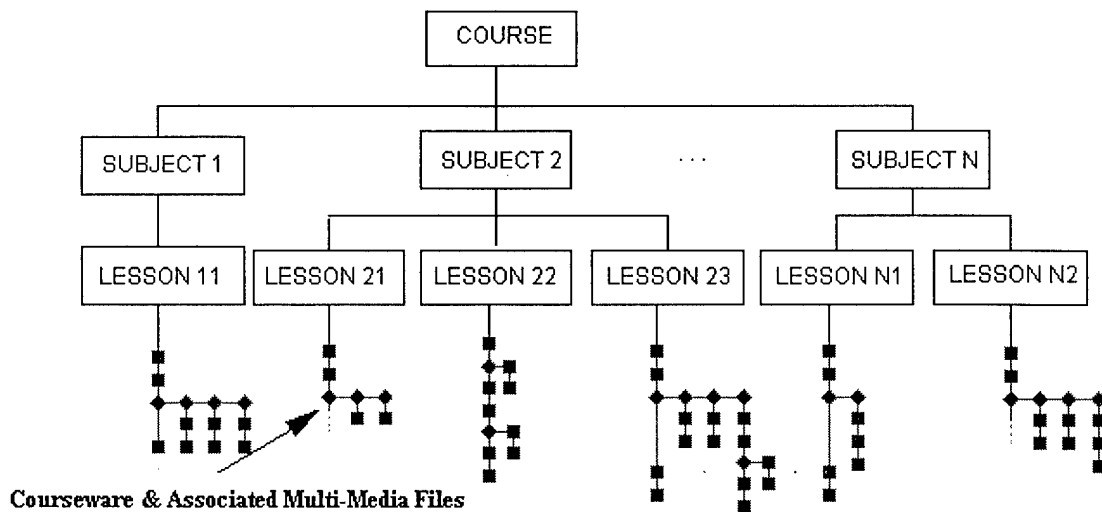
Figure 2-1   EMMii Course Structure

Specific details on setting up a curriculum and adding lessons are in Chapter 3, which provides details on how to use the TIS.

SECTION 2.4: GETTING STARTED IN TIS

In the EMMii program group you will see the TIS icon. (See Figure 2-2). Double click on it, and you will get the log-on dialog shown in figure 2-3, where you can enter your user name and password. [2]
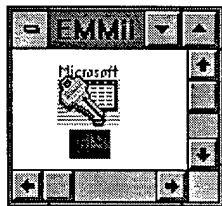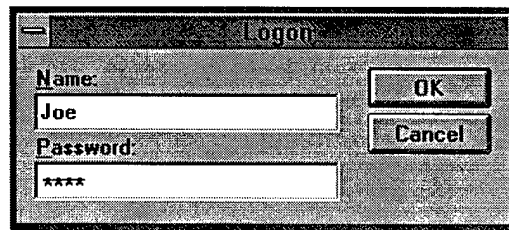

Figure 2-2   EMMii Program Group

Figure 2-3   TIS Log-In

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[2]   Your system administrator will assign a user name and password for the TIS to you. You will also be assigned a "role" which will determine what functions you may perform. This is discussed further in section 3.2.8.

Once logged in, you will be at the TIS Main Menu, shown in figure 2-4. The items across the top represent different menus of functions. You can look at any one of them by placing your mouse on it and clicking the left mouse button. You can then move the mouse down to any item on the menu and click to perform the function. Whenever your mouse has a menu or function selected, a brief description of the item will appear at the bottom of the window. An example of this is seen in the Administrator Menu in figure 2-5.

Not all functions will be available to all users. The "role" you are given by the system administrator, determines which functions you will be allowed to perform. At a minimum, most users can "view" data. Adding or editing data will generally require specific privileges.

The Help menu will provide you with help on the use of individual functions. The F1 key can also be used on many screens to supply additional information about the specific screen.
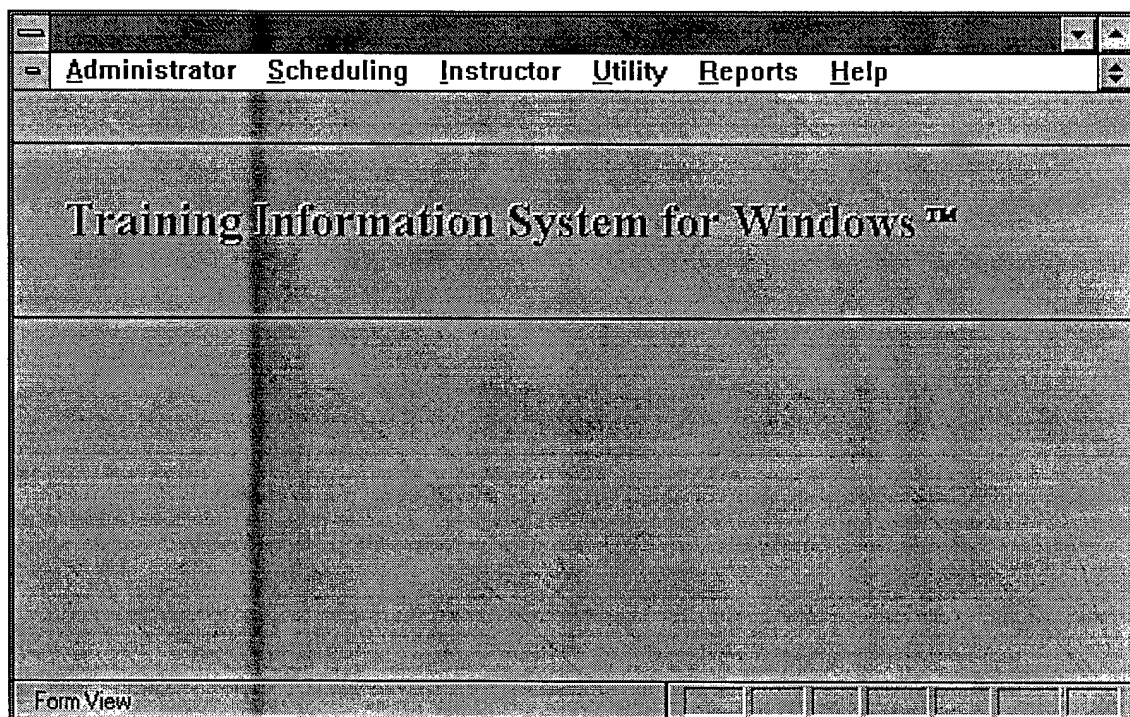

Figure 2-4   TIS Main Menu

The Administrator Menu (figure 2-5) is a list of functions for setting up, editing, and viewing the curriculum; adding and registering students; and adding users and passwords.

The Scheduling Menu contains functions that allow an authorized user to schedule students for a lesson or an entire course (on a CD), and to view and edit the schedules. The Instructor Menu provides data on student performance. The Reports provide summary data that can be viewed at the PC or printed. The utilities will seldom be used by anyone other than the system administrator.

There is additional information on the use of all these menus and functions in Chapter 3. What follows here is a quick explanation of how to perform the most commonly used functions within EMMii, namely:

- Adding and registering a student
- Scheduling a student for a Course
- Taking a lesson (or subject) at a student station
- Uploading results from a student station to the Manager PC
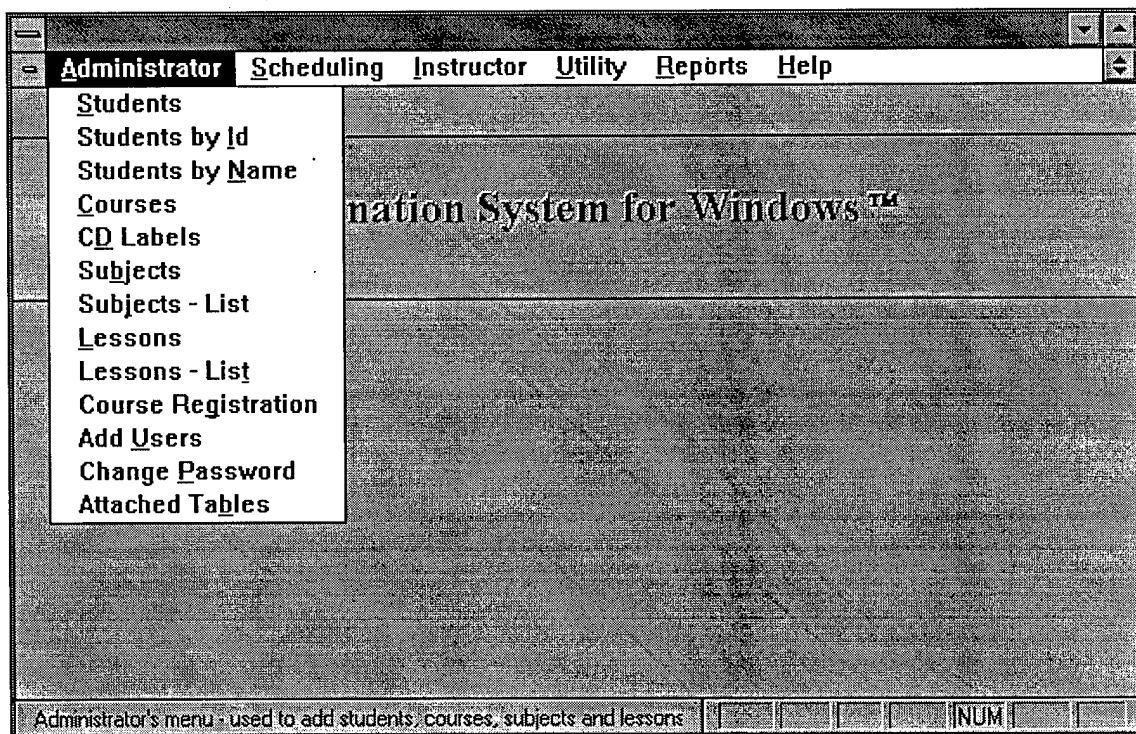- Viewing student results at the Armory.

Figure 2-5   TIS Administrator Functions

SECTION 2.5: ADDING, REGISTERING, AND SCHEDULING A
STUDENT

Students are scheduled for training via the TIS. This consists of four steps:

1.   Add the student to the database (enrollment).

2.   Register the student for the Course.

3.   Schedule the student for the Course.

4.   Prepare a Student DB.

All of these are described below.

Before a student can be scheduled, he or she must be enrolled for training and registered in the Course or Courses. Both of these are performed through TIS Administrator Functions. The "Students" function on the menu (see figure 2-6) will let you view, add, or edit data for a particular student. The other two Student functions provide lists of student data sorted by ID or Name.

Figure 2-6   The Student Information Screen

The data for a student is shown in figure 2-7. The Lookup field provides a pull-down where you may choose the student whose data you wish to view or edit. The Add button brings up a screen (figure 2-8) where data for a new student may be entered.

The ID is a unique identifier for the student, and every student must have one. We have used the Social Security number (without the spaces or dashes) as an ID. The ID can contain up to 10 digits. This is the number the student will use when logging in to the Student S/W. The other information (position, location, etc.) is optional. When you have completed the information, press Save and the information will be entered into the Host DB. You can edit this information later using the "Students" function, looking up the student whose data you want to edit, and then choosing Edit. You will not be able to edit the student's ID, however.

Figure 2-7   Adding Student Information

Before a student may be scheduled for a Lesson, he or she must be registered in the Course. This enables EMMii to restrict its lists of lessons to those relevant to the student, rather than always listing all courseware. Student registration is also performed through the TIS Administrator Menu. As with other functions, you will get a list of all currently

registered students that you may add to or edit. (See figure 2-8.) When you Add a student registration, pull-downs are provided so you may easily select the student and the Course. (See figure 2-9.)

A student may be registered for several Courses. You can also delete a student's registration. The delete is performed via the "Schedule a Student - Network" function, explained in Chapter 3. This does not delete the student as an enrollee nor does it modify or delete any history that student might have had in the Course. It merely deletes that Course (and its list of Lessons) from consideration for future scheduling for that student.

Figure 2-8   The Student Registration Screen

Once a student is registered for a course, he or she can be scheduled for individual lessons in the course or for the entire course. For the ARNG, students will be scheduled for all of a Course. The courseware itself will reside on a CD. However, it will be necessary to let the TIS know that the CD has been provided to the student and to prepare an appropriate database for the student to keep results in at the student station. These functions are performed via the Scheduling Menu (figure 2-10).

Figure 2-9 Registering a Student for the Common Core Course

Figure 2-10 The TIS Scheduling Menu

The "Schedule a Student - Network" is used to schedule a student for an individual lesson, usually on a PC that is part of a LAN attached to the Manager PC. This is explained in Chapter 3. For the ARNG, scheduling will be for a CD.

The "Schedule a Course on CDs" function is shown in figure 2-11. The pull down in the Lookup field will show all the registered students and the Course(s) they are scheduled for. Choose the one you want, and the three fields (Id-Course, etc.) will be automatically filled in. Double-click on the big button to start the scheduling process. When the hourglass disappears, you will get a message indicating that the student is scheduled. Your student is now scheduled for all the lessons in the course, and they will show up on the various schedule screens in TIS.[3] You can schedule as many as you want, then close this screen.

Figure 2-11   Scheduling a Student for the Common Core Course on a CD

You can view the schedule for an individual student by using the "Schedule by Student" function (see figure 2-12). Or you may determine which students are scheduled for an individual lesson by using the "Schedule by Lesson Function." In instances where there are several student stations attached to the Manager PC via a LAN, the "Schedule

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[3]   If you should inadvertently try to schedule a student for a Course twice, error messages will be generated for each Lesson in the Course that comes up as a duplicate. You can safely ignore these error messages.

A Student - Network" function allows scheduling for a particular station.   The "Schedule by PC..." function is then used to view the schedule for a particular station.

The "Schedule by Student" function is used below (figure 2-12) as a quick explanation of how these "list" functions work.

Figure 2-12   A Individual Student's Schedule

At the top of the screen is the "Lookup Field" - a pull-down list of students, sorted by name. You can select a student, and then use the scroll bar or arrows on the right to view all the lessons for which that student is scheduled. The Start/End Date for students scheduled for CDROM is the date on which the scheduling was done. The "By" field is the name of the user who did the scheduling. You may advance to other students using the arrows next to the Lookup field. The first arrow takes you to the first student;[4] the others go back, forward, and to the end of the list, respectively.

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4   This sort is by ID.

Once all the known students are scheduled for their respective courses on CD, you must prepare a Student DB to be used by all of them. This is done using the "Prepare a Student for Remote" function on the Scheduling Menu. When you select it, you will not get a screen; instead you will receive a series of messages at the bottom of the screen indicating the database tables being copied. The TIS is copying the required schedule data to a file called STUDENT.MDB on the Manager PC. You will get a message when it is done.

After the Student DB is made, you can either close or minimize TIS. Then go to File Manager and copy the STUDENT.MDB[5] file in the EMMii\TIS directory to a floppy. If you scheduled several students, you can use this STUDENT.MDB file to make disks for all of them, since all the schedule data are in there. Later, if you schedule a new student, or schedule an old student for a new Course, you will have to repeat steps 3 and 4 (Schedule Course and Prepare for Remote), creating a new STUDENT.MDB for that student. Other students will not need to receive the updated schedule unless theirs' change as well. There is more on this in Chapter 3.

The floppy disk containing STUDENT.MDB is provided to the student along with the CD(s) containing the scheduled Course(s). There is a CD label assigned to each course, and you can use the label data to determine which CD(s) to provide. There is a "Required CDs by Student" function on the Reports Menu that will provide you with a list of all the students and the labels of the CDs they need, or you may get a list for an individual student.

When a student receives the CD(s) and Student DB, he or she will follow the instructions provided in the next section of this chapter to actually take the lessons and post results.

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[5]   STUDENT.MDB is a small database much like that attached to the TIS. This is the database we refer to as the "Student DB."

SECTION 2.6: TAKING A LESSON AND UPLOADING RESULTS

All of what is discussed here takes place at a Student Station that has been loaded with the EMMii Student S/W. Normally, a Student Station will boot into this S/W. However, it can be started from the Program Manager in Windows. It is in the EMMii group and has the icon shown in figure 2-13. There are detailed instructions on the use of the Student S/W and the CBI available in the ARNG student manuals. What follows here is a brief overview.

**Figure 2-13
EMMii Student
S/W Icon**

The Student S/W Main screen is shown in figure 2-14. The "File" Menu only allows an Exit (which requires a password). The "View" menu is used to toggle the status bar (quick comments at bottom of screen) and Tool Bar (buttons at top). "Help" provides Windows Help on the software as well as specific instructions for the ARNG courseware. Help is also available via the F1 key and the help button on the tool bar.

The primary student functions are on the "Subject" Menu,[6] shown in figure 2-15. These functions are as follows:

"Login" is used to start a Subject (lesson).

"Subject Summary" (Lesson Summary) is a summary of what this student has taken (on the current schedule).

"Copy New Student Schedule" updates the Student DB file with a new one received from the armory.

"Post Results..." sends the student's results data to the Host (Manager PC) database.

"Start Mail" allows the user to send and receive E-Mail.

"Start Chat..." allows the user to engage in a chat session.

"Unload a Subject" (Unload a Lesson) deletes lesson files and data copied to the student's hard disk when a lesson was loaded.

"Connect to Host" dials the armory number and connects to the Net modem.

"Disconnect..." terminates the modem session.

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[6]   This is normally the "Lesson" Menu, but for the Ft. Benning CD's, the courseware exists as "Subjects" from the ARNG student perspective. Hence, the menu(s) shown here say "Subject". This is performed in TIS by having 1 Lesson per Subject and setting up the Student S/W so the Menus say Subject. For the IOWA courseware they say "Lesson." Where this may be ambiguous, this manual will generally say "subject" with "lesson" in parentheses.
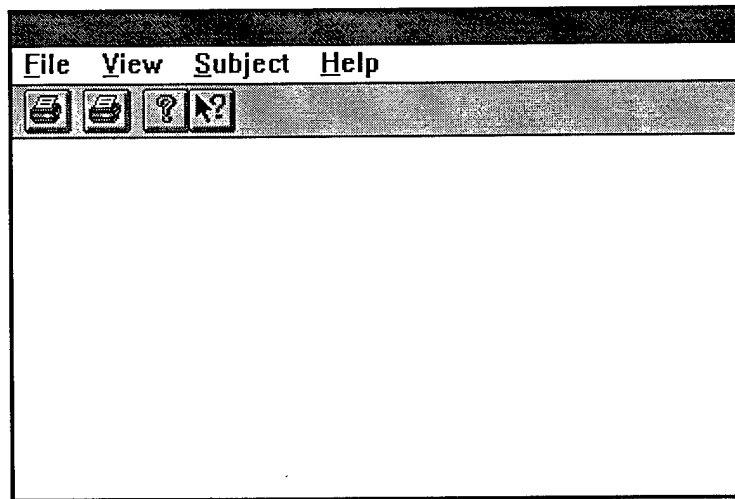
Figure 2-14   The Student S/W Main Screen

The Login and Summary functions are also available via the first two buttons on the Student S/W tool bar.
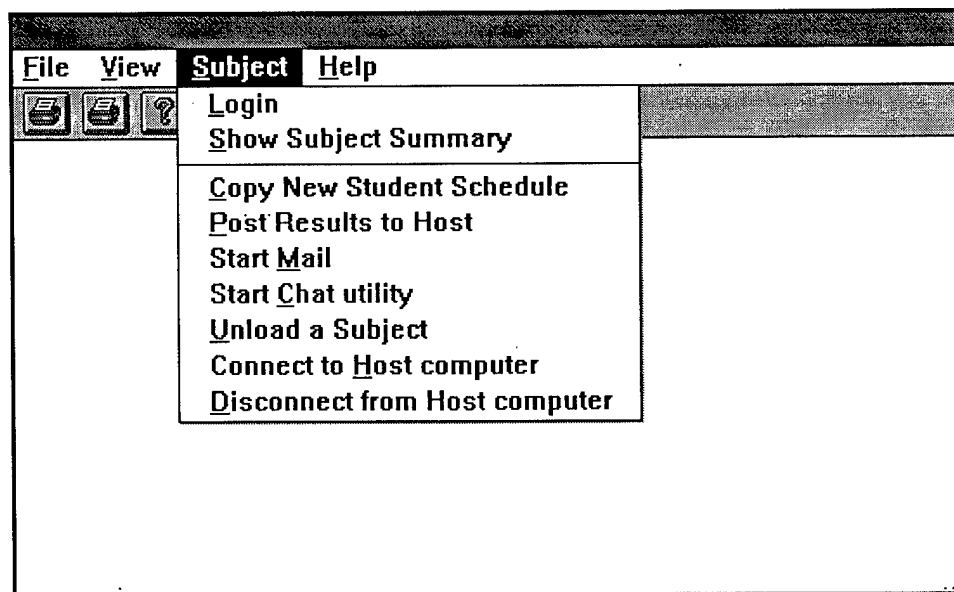

Figure 2-15   Student S/W Subject (Lesson) Menu

When the student first receives the schedule (the Student DB on the floppy), he or she uses the "Copy New Student Schedule" function. The student is instructed to put the disk in the floppy drive and then is presented with a standard Windows file selection dialog (figure 2-16) in order to find STUDENT.MDB on the floppy. The Student DB is copied

to the appropriate directory on the student station hard disk. The student now has a local schedule and is ready to login.[7]
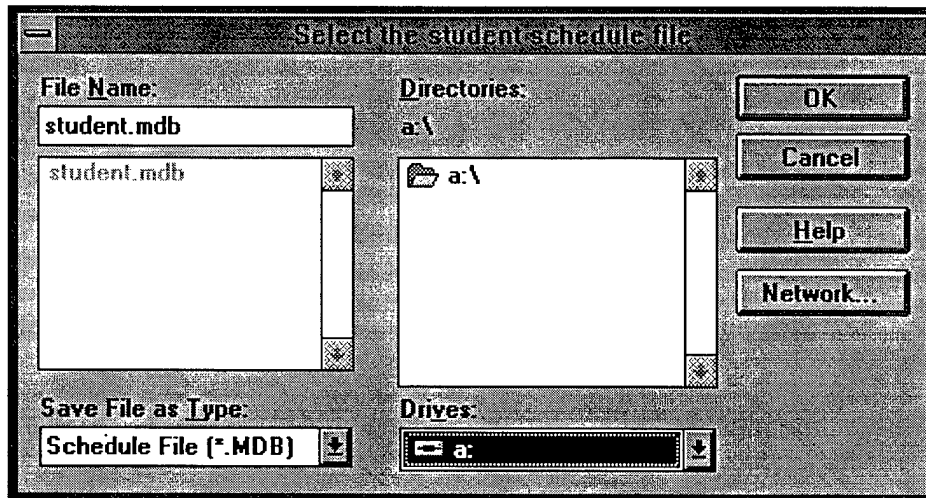

Figure 2-16   Dialog Box where Student Selects STUDENT.MDB to Copy

When a student logs-in, he or she will get the login dialog shown in figure 2-17. The student enters his or her ID number and presses OK to get the list of subjects (lessons from EMMii perspective) currently scheduled,[8] as shown in figure 2-18.
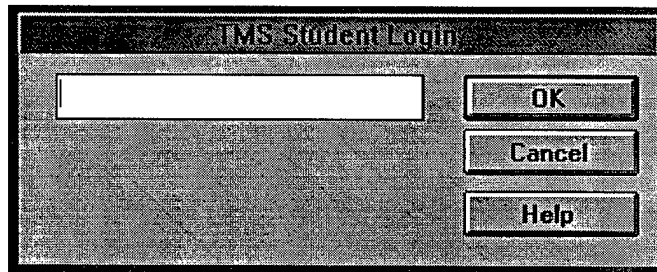

Figure 2-17   Student Log-in Dialog

The student may select any subject (lesson) by double-clicking on it or by selecting it and then pressing the OK button. When a subject (lesson) is selected, the student is told to insert the required CD. If the subject (lesson) was labeled "Not Loaded" in the selection screen, a few files will be copied from the CD to the student's hard drive. When the copying is done, the student will automatically start the subject (lesson). When the student finishes the subject (lesson) or quits out of it, he or she will be returned to the Student S/W Main Screen (figure 2-14). The student's "results" (test data, bookmark,

---

[7]   This procedure is also be used to replace an old schedule with a new one. If the student has results in the old Student DB that have not yet been sent to the Host (Manager PC at the armory), the copy will not be allowed until the student has posted those results. This prevents those results from being deleted by the new database.

[8]   This data is being read from the Student DB created at the armory and copied to the student station.

start/stop time, questionnaire responses, and posed questions) will automatically be written to the local student DB.
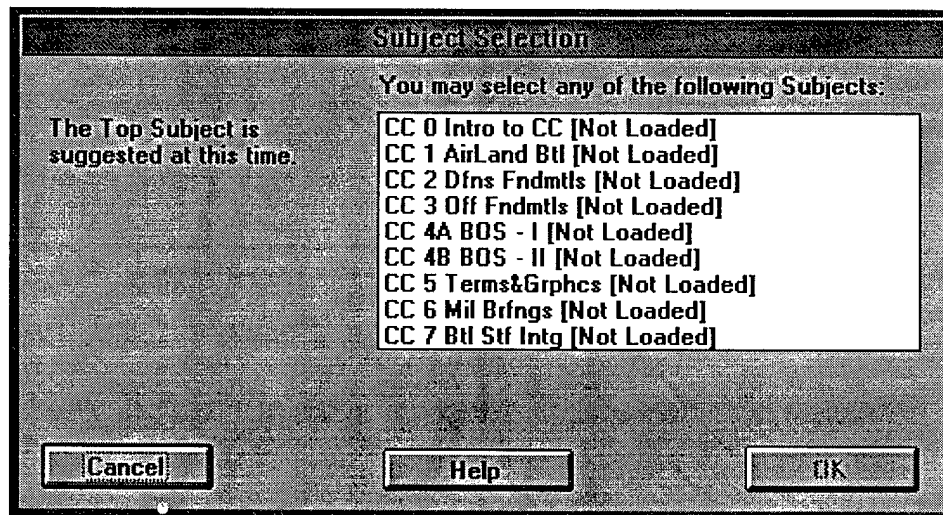

Figure 2-18   The Subject (Lesson) Selection Screen for a Student Scheduled for the Common Core Course

The student may login again and take another subject (lesson). In addition, if the student wants to re-visit a subject (lesson) (completed or not), it will appear as "loaded," and its data will not be re-copied. Thus, for example, a student could begin the AirLand Battle subject (CC 1), take the pre-test, and exit. The same student could then login and take the Terms and Graphics Subject (CC 5). If the student returned to AirLand Battle it would appear as "loaded" on the selection screen, and he or she would not have to retake the pretest; the bookmark would show the student had already taken it.

Of course copying files to the student's hard disk will use up disk space. Hence the "Unload a Subject" (Unload a Lesson) function allows the user to choose one or more subjects (lessons) to "unload." This will delete the files from the hard disk. The student can still take the subject (lesson) at a later date and the files will be re-loaded.

When a student finishes a CBI session, he or she will probably want to post results to the Host (Manager PC). For an at-home student, this involves four steps:

1.   Attach the computer's modem to the home telephone.

2.   Choose "Connect to Host Computer" from the Subject (Lesson) Menu and select "connect" (see figure 2-20). This will automatically dial the armory and

2-16

attach to the net modem. The student should minimize (not close) the modem dialog by clicking on the arrow in the upper right-hand corner.

3.   The student may now "Post Results to Host" (also on the Subject [Lesson] Menu). A dialog box will appear indicating that the results are being sent. The student is told to disconnect when the upload is complete.

4.   The "Disconnect from Host" function brings up the same connection dialog (figure 2-19), but with a "disconnect" button. This will terminate the session, after which the student may disconnect the modem from the phone.
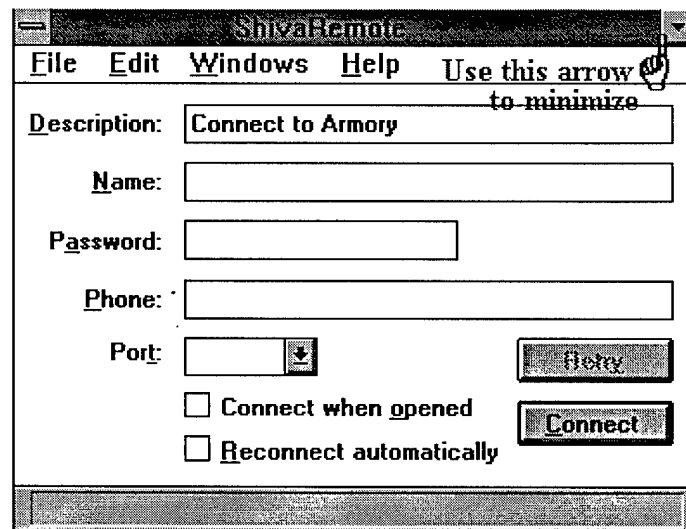

Figure 2-19   Connection Dialog

The student may use the mail utility or chat utility while connected to the host computer.

SECTION 2.7: VIEWING RESULTS

There are many different ways to look at student results in the TIS. This section provides a brief overview. Chapter 3 has more details.

The TIS Instructor Menu (figure 2-20) has several functions that show history data. For example, History by Student (figure 2-21) shows which lessons an individual student has taken. Whereas History by Lesson shows all the students who have taken a particular

lesson. You can also use these screens to look at questionnaires and get aggregate data on student opinions of the lesson. You can also look at questions a student may have posed about a lesson.
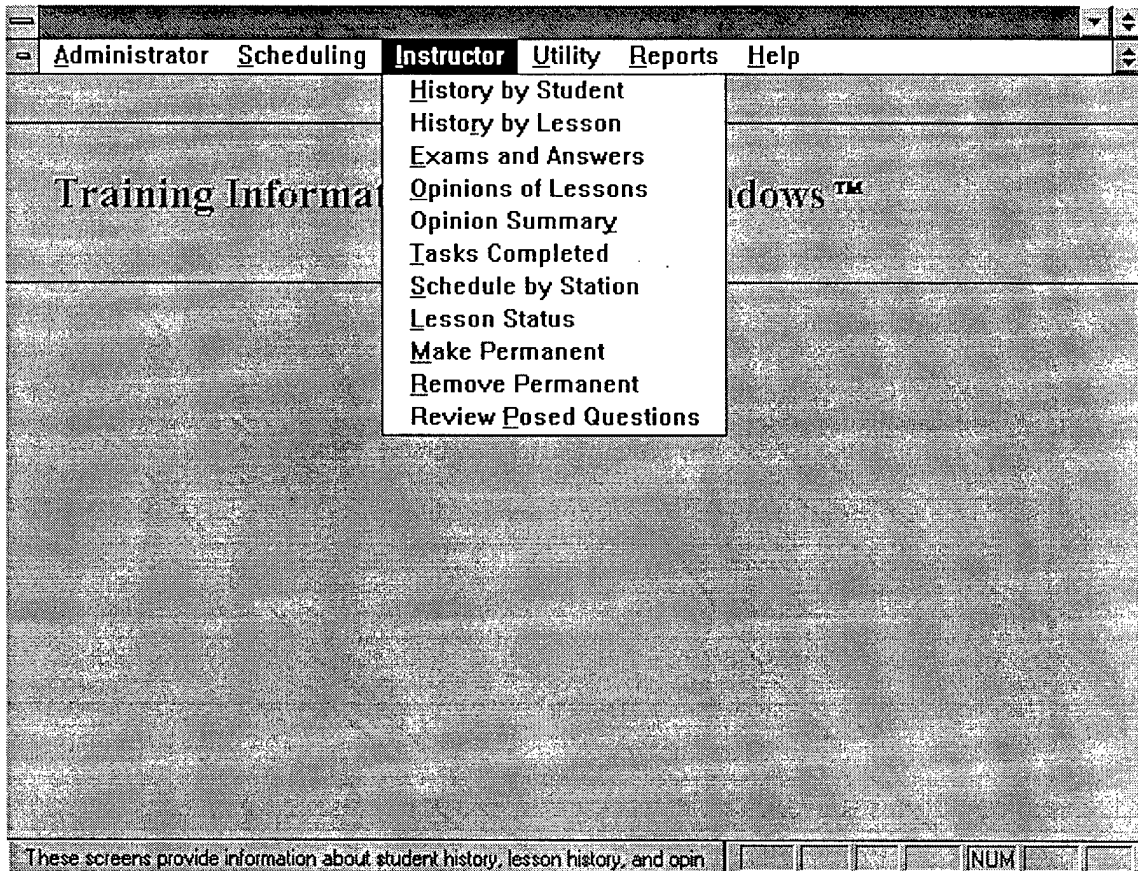

Figure 2-20   The TIS Instructor Menu

As with most TIS screens, History by Student has a pull-down menu where a student may be selected. That student's history in one lesson will be shown, as in figure 2-21 where Mike Frese's history in CC5 is shown. The arrows at the bottom can be used to see more history data for the lesson (if there is more than can fit on the screen) or to advance to another lesson. In this figure you can see that Mike has taken the Terms and Graphics lesson twice, the first time spending half an hour in it, and the second time spending a little over an hour. There is more on interpretation of this data in Chapter 3.

Figure 2-21   A Student History Screen

You can also look at the answers a student has given on a particular exam. The Exams and Answers screen (figure 2-22) shows this sort of data. Both the student's answers and the correct answers are shown. The question numbers are absolute, not relative. Thus, question 1 may not have been the first question this student saw in this exam, but question 1 will be the same question for all who took this exam. This enables EMMii to provide aggregate data as well as individual data (see the Answer Frequency Report).

Chapter 3 provides considerable detail on the use and meaning of the other reports and screens available through the Instructor and Reports menus.

Figure 2-22   A Student's Answers to an Exam

CHAPTER 3 -- THE TRAINING INFORMATION SYSTEM

This chapter describes the use and meaning of screens and reports in the TIS. Some of these are not particularly applicable to the ARNG, but their descriptions are included for the sake of completeness. This chapter is organized by the various menus in the TIS. Appendix B contains a table of functions versus menus that will aid you in finding where a function lies so you can more readily find its description.

SECTION 3.1: GENERAL TIS USAGE

3.1.1   Logging into TIS and Getting Help

In the EMMii program group you will see the TIS icon. (See figure 3-1.) Double click on it, and you will get the log-on dialog shown in figure 3-1, where you can enter your user name and password. Your system administrator will assign a user name and password for the TIS to you. You will also be assigned a "role" that will determine what functions you may perform.[1] Initially your password will be blank, and you will have to set it via the TIS Change Password function. (See Section 3.2.12)
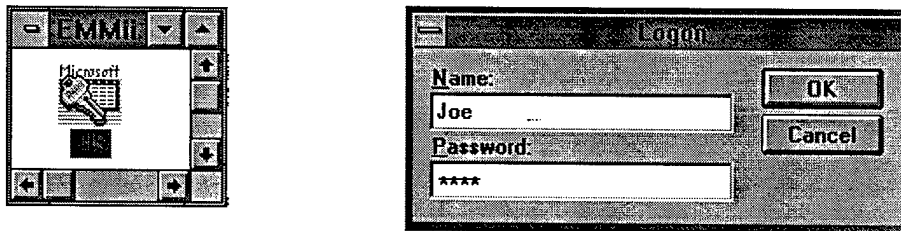
Figure 3-1 TIS Icon and Logon Dialog

Once logged in, you will be at the TIS Main Menu, shown in figure 3-2. The items across the top represent different menus of functions. You can look at any one of them by placing your mouse on it and clicking the left mouse button. You can then move the mouse down to any item on the menu and click to perform the function. Whenever your mouse has a menu or function selected, a brief description of the item will appear at the bottom of the window.

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[1]   Roles are discussed under "Adding a User" in Section 3.2.8.

Figure 3-2   The TIS Main Menu

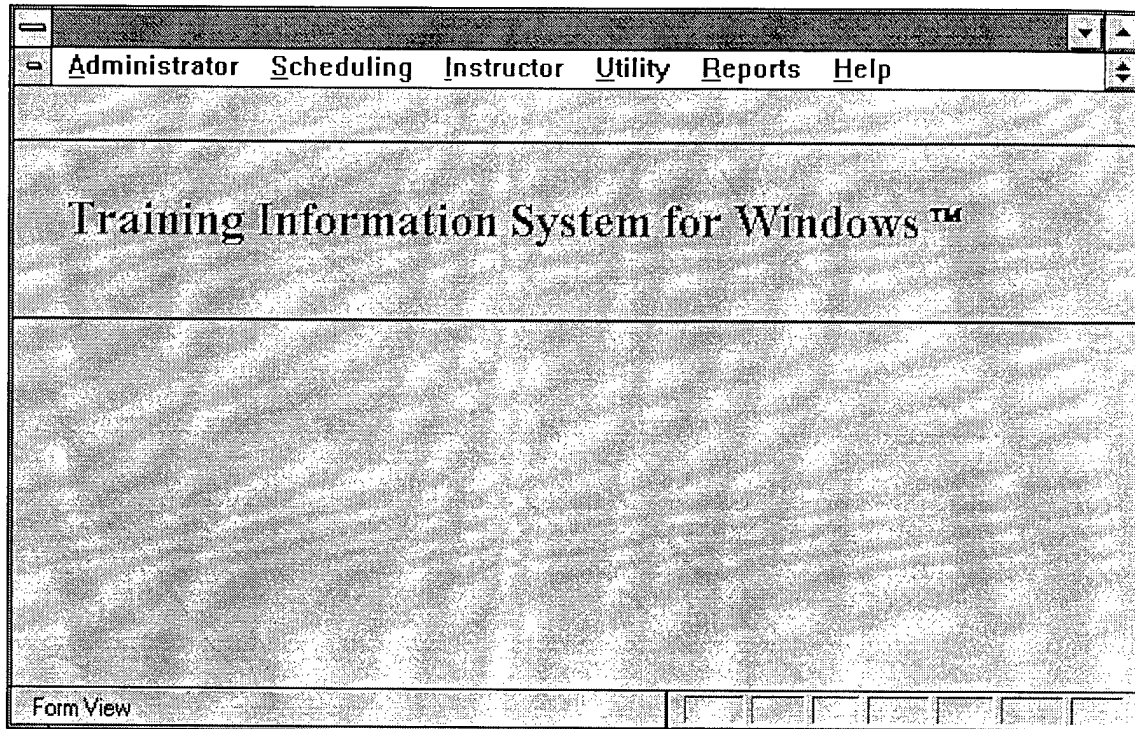Not all functions will be available to all users. The "role" you are given by the system administrator determines which functions you will be allowed to perform. At a minimum, most users can "view" data. Adding or editing data will generally require specific privileges.

The Help menu will provide you with help on the use of individual functions. The F1 key can also be used on many screens to supply additional information about the specific screen or its use.

Details on the menus and their associated functions are provided later in this chapter.

3.1.2   Special Fields and Controls

Each screen contains a screen menu bar at the top (such as the one in figure 3-3) consisting of pull down menus for Form, Edit, Records and Help. To make a selection off one of the menus at the top, simply click the cursor over the option or enter the Alt key followed by the underlined letter of the desired option. Then the available options under that menu are displayed. Under Form, the only option is Close, so you may then

enter c from the keyboard or click on close, which returns to the main menu. You may select options from the other menus in the same way.
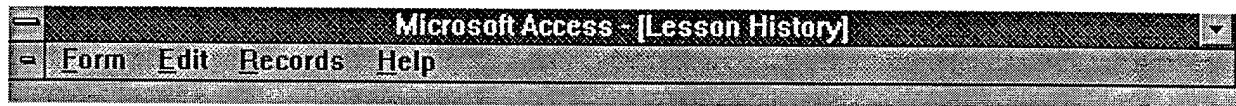

Figure 3-1 TIS Menu Bar

These menus perform as follows:

Form   Generally contains an option to close the current screen. This will return you to the menu or screen from which you came.

Edit   Contains several functions for choosing or editing data, such as one that lets you select an entire record (all the data on the screen) for a delete and one to find a particular entry in a long list.

Records   Contains several functions to let you move among the records in a list. Can also let you create database queries.

Help   Allows you to view either the Help Index (from which you can get to all of the TIS help) or the "About..." screen, telling you what version of TIS you have. You may also get help by pressing F1.

There is more information on the Edit and Records menus available in Appendix D

You really do not need the Edit and Records menus. Their functions are generally more easily obtained through buttons provided within TIS. However, advanced database users may find them useful, and hence they remain within the system.

A typical TIS screen, Student History, is shown in figure 3-4. When the screen is opened, all the appropriate data is retrieved from the database and made available. The controls allow you to maneuver within the data set.

Figure 3-4   A Typical TIS Screen

The screen in figure 3-4 has a "lookup" field at the top. The arrow on the lookup field produces a list of items from which you may choose. Once you have chosen one, its accompanying data will be shown in the details below.

In figure 3-4, the lookup field shows a list of students sorted by last name. When you select one, that student's data appears below. The arrows to the right of the lookup field allow you to advance to other records. They are interpreted as follows:

◄	Go to first record	►	Go to next record
◄	Go to previous record	►|	Go to last record

In addition, this screen has two sets of arrows at the bottom. The first set allows you to see additional data that might go on this page but that does not fit on the screen. Thus, in this example, if the student had taken the lesson so many times that the history would not fit on one screen, you could use the arrows to see the remainder of the history.

The bottom set of arrows takes you to separate pages. In this instance, that would be history data for another lesson for the same student. You can even use these to see data for other students once you have reached the end of one student's data.

If the lookup list is quite long, you can type in the data you want to see in the lookup and then use the lookup arrow. It should be pointing at the entry you requested.

> **A word of warning:** *The lookup field is just that. If the data in the details and the lookup data do not match, either there is no data for the particular item selected in the lookup field, or you have advanced the data via the arrows, and the lookup field is no longer tied to the data.*

There are also normal Windows controls on the screens. The "down" arrow in the upper right will minimize the current screen so you can keep it open but work in another window or application. The "up" arrow maximizes it. The "resize" button will allow you to resize the window. Normally, TIS runs full-screen, but you may have occasion to resize it. The two "Control Menu" boxes in the upper left close the windows. *The top control closes all of TIS*; the lower one closes the screen you are on (the active window).

Because the TIS screens exist in their own windows, you can actually have several TIS screens open at once. You do this as follows:

1. Select the first screen you want to see. Minimize it or use the resize button to make it smaller. You should see the Main Menu in the background.
2. Maximize the Main Menu so you get the menu bar and can choose another screen.
3. Resize the second screen and continue.
4. You can move the screens (via their title bars) or make any one active by clicking on it.

The example in figure 3-5 shows the Courses screen and the Lesson Schedule screen opened, with Lesson History minimized in the background.

You can also cut, copy, and paste text from the screens into documents or into other screens (assuming you have edit privileges).

Figure 3-5   An Example with Three TIS Screens Open at Once

3.1.3   Function Buttons

On many of the screens there are buttons at the top that say Add, Edit, Delete, etc. These will allow you to perform modifications to the data.

Add - Lets you add a new entry into the database

Edit - Lets you change one or more fields in the data

Delete - Lets you delete a record from the database

Depending on your level of privilege as a user, you may not be able to perform any of the editing functions.

After Add or Edit functions, the screens will have a Save button. This generally is required to save any additions or edits you have made. The Cancel or Close button will

allow you to exit without making any changes. There are some additional buttons on the Report screens that are discussed in Section 3.6.

3.1.4   The Main Menu

The TIS Main Menu is shown in figure 3-2. Each of the items on the menu bar represents a pull down menu from which numerous functions are obtainable.

The **Administrator** screens maintain user, student, course, subject, and lesson information.

The **Scheduling** functions assist scheduling computer based training: using a network for delivery, using CDs for remote delivery, and listing schedules by student, by lesson, and by PC.

The **Instructor** menu is a set of screens showing history by student and by lesson, students' answers to exam questions, student opinions of lessons, and summaries of those opinions. One screen is available to add and edit any tasks completed that are not part of CBI modules. There are other screens that display the status of lessons on a station.

The **Utilities** functions maintain system parameters used for scheduling and descriptions of the lesson opinion criterion. Other events can be scheduled using this menu.

The **Reports** available include answer frequency, lesson usage, lesson and student history, completed tasks, exam data, opinion summaries, and a catalog of lessons.

The **Help** menu identifies the version of the TIS and allows you to get help on using the TIS. Help includes table of contents, keyword searches, and definitions.

After the top level menu is selected, you may make a selection from the pulled down menu by entering the underlined letter in the selection text (no Alt key required) or by clicking on the text. All of the menu bar items may be accessed using either method. To return to the menu from a form, select the Close button, if available, or select the File menu, Close option, or from a report select the Cancel button.

SECTION 3.2: THE ADMINISTRATOR FUNCTIONS

The Administrator functions are used primarily by the system administrator, although some, such as adding and registering students, might be performed by other users if necessary. They are occasionally used by others in a view mode. Figure 3-6 shows the Administrator Menu. Each of these will be discussed individually in the following sections.

| Administrator | Scheduling | Instructor | Utility | Reports | Help |

Students
Students by Id
Students by Name
Courses
CD Labels
Subjects
Subjects - List
Lessons
Lessons - List
Course Registration
Add Users
Change Password
Attached Tables

nation System for Windows ™

Administrator's menu - used to add students, courses, subjects and lessons   NUM
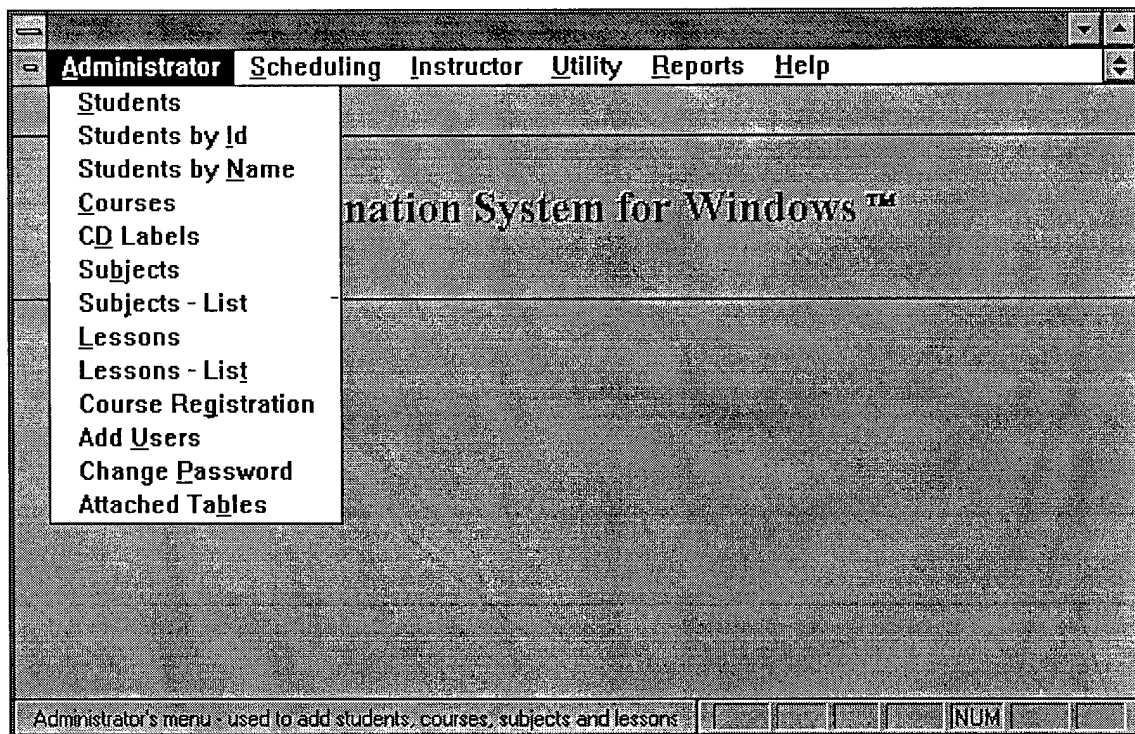
Figure 3-6   TIS Administrator Functions

3.2.1   Students

The Students function is used to view, add, or edit information about individual students. Its screen is shown in figure 3-7. To add a student, select the Add button and you will get a screen similar to the one shown, except that the fields will be empty and it will have a Save and a Close button. You enter the data for a new student and press Save. You can exit an Add or Edit screen without saving by using the Cancel button.

> **Every student must have a unique ID number of up to 10 digits.** We often use the Social Security number for this.

Figure 3-7   The Students Screen

3.2.2   Students by ID and Students by Name

These screens (figures 3-8 and 3-9) may be used to show information about all students sorted by ID or name or to inquire about the information for a particular student or set of students. The Lookup field can be used to select a record. The Lookup field may be used to select the record for a student or student(s) of interest to the viewer. This screen is organized in a tabular or list layout, where multiple student records are being displayed. Student records may be edited or added in the form.

Figure 3-8   Students By ID Screen

Figure 3-9   Students by Name Screen

3.2.3   Courses

The highest level of organization of CBI "courseware" within EMMii is a Course. A Course consists of Subjects, and the Subjects are made up of one or more Lessons. (See section 2.2.) The Course function may be used to add or delete Courses and to edit the description of a Course. Each Course to be delivered by CD-ROM is assigned a CD label indicating the name of the CD that contains the Lessons in the Course.

When you first choose this option from the Administrator menu, the Courses already in the TIS are listed on the form. To add a new Course, use the Add button and then enter the required data.

Figure 3-10   Courses Screen

Every Course has a Name and a Number. The "Course" field is the course number - up to 12 alphanumeric characters. The Name contains up to 60 characters. The narrative can be used to provide an extensive description of the Course. Courses that are not on a CD, have a CD label of "None".

A Course may only reside on one CD;[2] it cannot be spread across several. However several Courses may reside on one CD. **When adding a new Course, make sure that the CD label is already entered into the list of allowable labels**[3], as you must choose the CD label from the pull down list associated with the CD field.

> For the ARNG, the Course names, descriptions and CD labels are already in the database and should not be changed. Editing the narrative is permissible.

---

[2]   There can be several copies of this CD, all bearing the same label.
[3]   Use the CD Label Definition function explained in the following section to add or edit the allowable CD labels.

3.2.4 CD Labels

New names for CDs may be added though the CD Label function, shown in figure 3-11. New names may be added to the list at the bottom. Names currently on the list may be edited, and all Courses associated with that label will be changed accordingly.

Figure 3-11 CD Label Screen

3.2.5 Subjects and Subjects List

A Subject is part of a Course and contains one or more interactive, multimedia computer based training Lessons. The Subjects screen lists several Subjects grouped by Course. The Lookup field is used to choose a Course, and then its Subjects are shown in the details. The Subjects are ordered by the suggested order that they are to be taken within the Course.

New Subjects may be added using the Subjects screen (figure 3-12). As with the Courses, each Subject has a name (60 characters, maximum) and a number (12 characters). The number, name, and order must be supplied for all new Subjects. The

order is the sequence for this Subject within the Course. Thus an order of 3 implies that the Subject would normally be executed before one with an order of 4. The orders need not increment in a 1, 2, 3, ... fashion. In fact, increments of 10 are recommended so that new Subjects may be inserted between other Subjects as desired. The narrative describes the Subject in detail.

Figure 3-12   Subjects Screen

For the ARNG, the Subject names and descriptions are already in the database, and should not be changed. Editing the description is permissible.

The Subjects-List screen is a quick way to list all Subjects in a Course. The Lookup field selects the Course of interest. This screen may be used to add a Subject. However, the Subjects function is better suited to this.

Figure 3-13   Subjects - List Screen

3.2.6   Lessons and Lessons List

A Lesson belongs to a Subject. The Lessons screen, shown in figure 3-14, can be used to view, add, or edit Lesson data for both CBI and non-CBI Lessons. The Lookup field is used to choose the Course/Subject whose Lessons will be shown.

As with Subjects, each Lesson has a Name, a Number, and an Order (within the Subject). In addition, Lessons have a version number than can be used to track changes. Lessons also have a Mode: C for CBI Lessons and N for non CBI-Lessons. Tasks completed for the non-CBI Lessons can be entered manually and reported in the TIS.[4] When adding a new Lesson to the curriculum, the Course and Subject pull down fields help data entry accuracy.   The lesson duration is in hours and minutes, and the size of a

---

[4]   Tasks correspond to non-CBI Lessons the same way exams correspond to CBI Lessons. The Tasks Completed function (section 3.4.6) on the Instructor Menu allows you to enter data for non-CBI tasks completed.

CBI lesson is in megabytes.[5] The duration is the amount of time the lesson is expected to require from the student. The order and name must be supplied for all new Lessons.

Figure 3-14   Lessons Screen

In addition, when adding a Lesson via the TIS, a directory name must be provided. This name is entered in hexadecimal[6] and must be unique since it also serves as an identifier for the Lesson. For example, to enter a directory of 2A (or 42 in decimal), you enter &h2A in the directory field. If there's already a Lesson with that ID, an error message will be generated.

---

[5]   The size is used in the networked version of the TMS to determine if the student's hard disk has enough space for a lesson download.

[6]   Although it's entered in hexadecimal, it's displayed in decimal form. The one shown in figure 3-14 is 105, which in hexadecimal is 69.

You also use this function to enter data about non-CBI lessons. All of the data except size should be entered. This includes assigning a "directory," since this serves as an identifier for the Lesson.

There are two separate description/narrative fields provided. The narrative is used to provide author comments, and the description contains data about the Lesson that might be of interest to a student.

A list of Lessons associated with a Subject is also available. This screen lists the Lessons in their suggested order. The Lookup field allows you to select the Course/Subject of interest.[7]

Figure 3-15   Lessons - List Screen

For the ARNG, the Lesson names, versions, directories, etc. are already in the database and should not be changed. Editing the description or narrative is permissible.

3.2.7   Course Registration

Since most students will not take all the Lessons available, a Course registration function is provided. This enables the TIS to restrict the list(s) of Lessons shown for

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[7]   For the BN Battle Staff, each subject contains only one Lesson from the TIS perspective. Normally, this list would contains several lessons.

scheduling to those Courses that are of interest to the particular student. A student may be registered for more than one Course. A student cannot be scheduled for any Lesson in a Course unless he or she is registered in the Course.

The Course registration screen (figure 3-16) allows the administrator to add and edit Course registrations. All the fields are filled using pull downs.

Figure 3-17   Course Registration

3.2.8   Add Users and Change Password

Individual users of the TIS must be identified to the TIS in order to logon. In addition, each user is assigned to one or more groups. The group determines the amount of access the user will have. (Every user is in the "User" group.) Table 3-1 defines the groups and their roles within the ARNG EMMii. There is considerable overlap in the roles. **The Add Users function is only available to users in the Admins group.**

Group	Type(s) of privilege
Admin	This is the highest level. Users in this group may add/ edit /view nearly all records. This privilege should be allowed to only a few individuals.
Author	Can view nearly everything. Allowed to edit Course, Subject, and lesson data.
Guest	View privileges only, and not able to view everything.
Instructor	Can add and edit student data, schedules, registration etc. Can view almost everything.
Student	Very few edit privileges. Can view most data, but not all.
User	View privileges only, and not able to view everything.

Table 3-1   Role Definitions

The Add a User function brings up the screen shown in figure 3-18. The New... button provides the New User/Group dialog box where the user name and a 4-digit ID number are entered.[8] This number is merely a unique identifier to the database. It is not a password, and it is never used again. When you press OK, you are returned to the Users screen where you can choose from the "Available Groups" list and press Add>> to put that group into the "Member Of:" column. In the figure, user "Bill" is a member of both the Users and the Instructors group. Similarly, membership status can be removed for a user. The Clear Password button gives this user a blank password. You can also delete users. The changes you enter will take effect when you close the Users dialog.

---

[8]   All users of the system must belong to the same Workgroup within Windows for Workgroups. Each user is assigned a logon user name and ID for Windows for Workgroups and a user name and password for Access. The Access user name and password belong to one of the TIS groups set up for security.
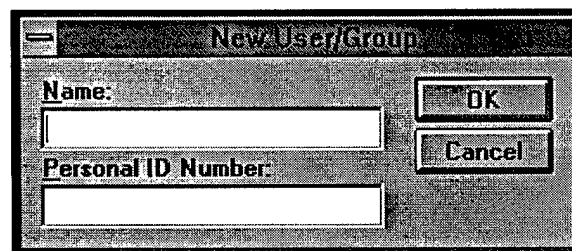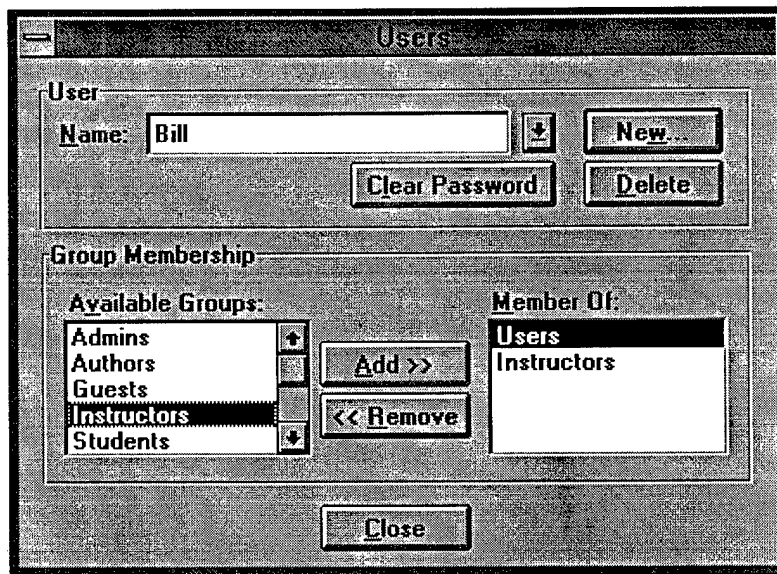
Figure 3-18   Adding and Defining a User

> **Warning**: If you ever remove the Student user (not to be confused with the Students Group) or change the password for the Student user, student results **will not post** to the database. The Student user is a background user of the database that gives other software in EMMii access to the tables.

The Change Password function (figure 3-19) lets the logged-in user change his or her password. Thus, to change the password of a user, you must first login as that user. The dialog requires that the old password be entered, followed by the new password, twice.
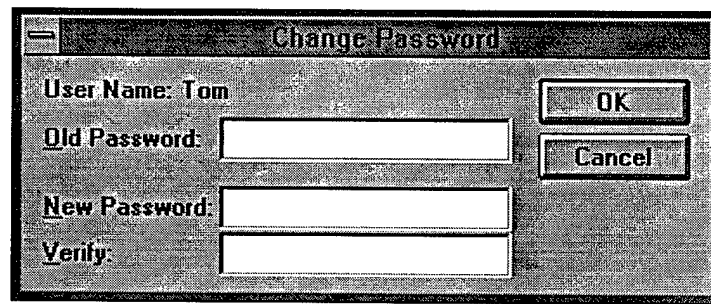
Figure 3-19   The Change Password Dialog

3.2.9   Attached Tables

It is possible to use the TIS to maintain more than one training database. This is done by attaching the software to different tables. The Attach Tables screen is shown in figure 3-20. This menu option provides a chance to attach to the TIS tables on a different drive or directory. This is useful right after initial software installation or if the TIS tables have been moved.

This is a function normally done only by a system administrator. It should not be used by anyone else.
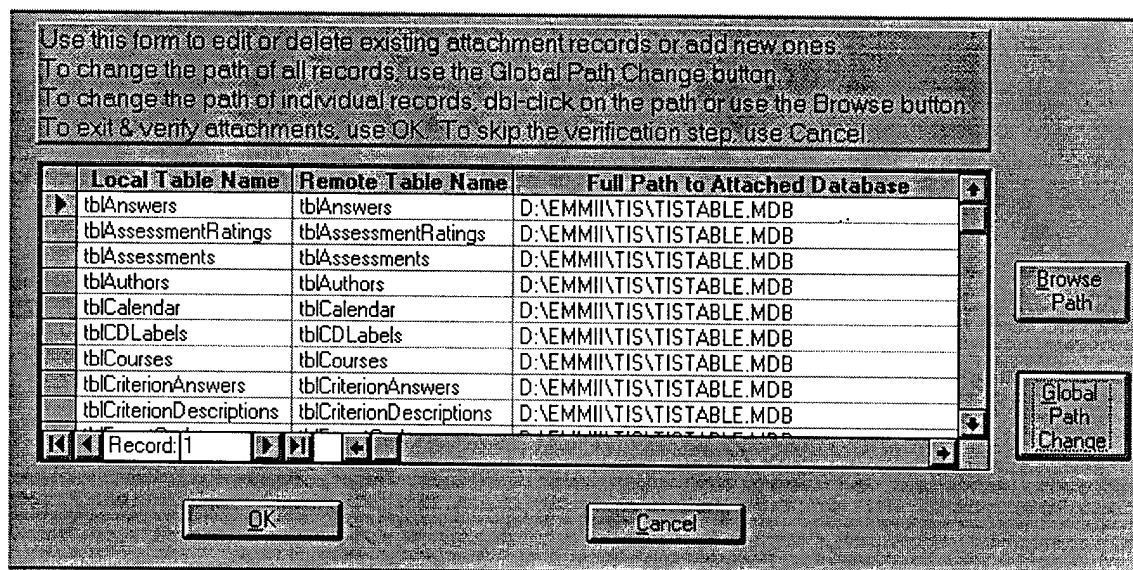
Figure 3-20   Attached Tables Screen

The current attachments are shown on the screen. The Global path change button allows you to browse directories to find the database to which you want to attach. When you press OK, you will be asked if you only want to fix broken attachments or to reconnect everything. Normally, if you are attaching to a new database, you will want to reattach everything. When the reattachment is complete, you will have to exit TIS and re-enter it. The data you will be viewing and editing will be from the new database.

If the TIS has difficulty attaching to your database upon opening, you may be brought to a screen similar to the Attach Tables screen. In this case you may choose a database to attach to (normally TISTABLE.MDB in the TIS directory). If the database is not different from the one it tried to attach originally, you can choose only to rebuild the broken attachments or, as before, you may choose to reattach all the tables.

SECTION 3.3: TIS SCHEDULING FUNCTIONS

The TIS Scheduling menu (shown in figure 3-21) can be used to schedule a student to take a lesson at a network PC, or to schedule a Course to be taken using a CD-ROM as the source of the Lessons. The scheduled dates and times can be reviewed by looking at a student's lessons, by listing the students taking a lesson, or by listing the students and lessons scheduled on a particular PC.

| Administrator | Scheduling | Instructor | Utility | Reports | Help |

Schedule a Student - Network
Schedule by Student
Schedule by Lesson
Schedule by PC Workstation
Schedule a Course on CDs
Prepare a Student for Remote

These screens are used for scheduling - network, CDs and rel
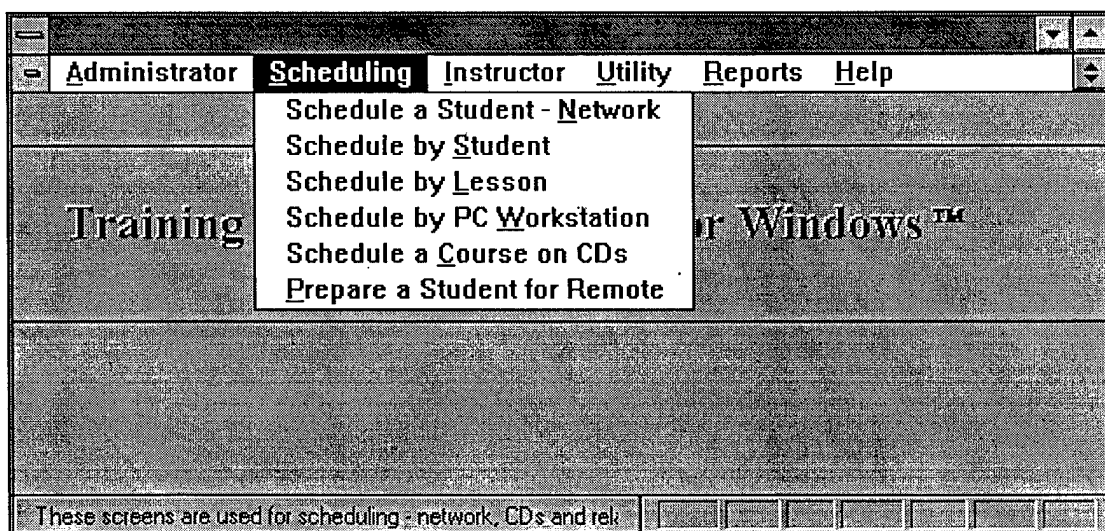
Figure 3-21   Scheduling Menu

While some of these functions will not normally be used by the ARNG, their descriptions are included here for completeness.

3.3.1 Schedule a Student - Network

This function is used by the instructor to schedule a Lesson for a student at a PC on a network. This method of delivering a multimedia lesson is called "network" because the network is used to move the lesson's files from the central repository to a student PC. **The student must be registered for the Course before he or she can be scheduled for any of its Lessons[9].**

To schedule a registered student for a new Lesson, choose Add on the Schedule a Student - Network screen. The data entry screen is shown in figure 3-22. Enter the student's ID, the Course, Subject, Lesson and version, the PC station, and the start time on the form in order[10]. All of these can be accomplished using pull down menus.

The start time defaults to the current time or a particular start time may be entered. When available time on a PC is critical, a pull down may be used to suggest available start times on the station based on the current schedule. The end time is automatically set by adding the Lesson's duration to the start time, but it can be edited. If no duration is found, 1 hour is used. The start and end times are provided primarily as a convenience to those doing the scheduling. EMMii does not restrict the student to the time for which he or she is scheduled.

The Frequency is filled in using a default value of I, for immediately. The frequency may be changed using choices from the pull down tab at the end of the field. The When field is the date and time the Lesson's files are to be downloaded to the student station. When the Frequency is I, When is the current time. For example, if you were scheduling a student for a Lesson a week from now, you would want to set the frequency to 1 (for one download only). The When field would be set to the date/time you wanted the download to occur. Since transfer of large multimedia files can be time-consuming, it is advisable that the download take place at a time of day when the network is not very busy.

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[9] Course Registration is on the Administrators menu. It is discussed in Section 3.2.7.
[10] Doing these in order is important because, for example, the choice of Course determines the list of Subjects available on the pulldown. You can use the Tab key to go from field to field in order.

Figure 3-22   Schedule A Student - Network

The Scheduler is automatically set to the TIS user's ID.

This "Schedule Event" goes onto the TIS's Calendar of Events. The entries in the Calendar table for a particular station are periodically checked by the Student Station software on the stations to see if it is time to download lesson files. If the Lesson doesn't already exist on the station, the location and file names associated with the Lesson are obtained from the TIS. With that information, the Student module performs the download of files to the station.

This screen can also be used to edit the schedule of a student. For example, you can select a particular schedule event and choose Edit. This will allow you to change the start/end time or station. You can even delete the scheduled event. Normally, if a student completes the session on a network-scheduled Lesson, the schedule event is deleted from the calendar automatically. This does not happen with Lessons scheduled for CD-ROM, however.

3.3.2 Schedule by Student, Lesson, PC Workstation

These functions allow you to look at the schedule from a variety of angles. For example, the Schedule by Student shows all the lesson/stations/times, etc. for which a given student is scheduled, as shown in figure 3-23. The Lookup field allows you to select all students or a particular student by using the pull down list of Students. This screen is organized in a master/detail layout, where the student whose schedule records are being displayed is in the master section and the actual schedule records are displayed in the detail section of the form, ordered by the start date.

Figure 3-23   Schedule by Student

In addition, you can determine all the students scheduled for a particular lesson, or the schedule for a particular workstation. Examples of these are shown in figures 3-24 and 3-25.

Lesson Schedule

Lookup: S3 - 5: Order Procs v.001   [◄◄][◄][►][►►]   [Edit]   [Close]

Lookup: S3 - 5: Order Procs v.001

Course Name	S3	Course:	S3	
Subject Name	Orders Process	Subject: 5	Order: 005	
Lesson Name	Orders Process	Lesson: Order Procs	Order: 001	Version: 001

Station: CBI 2	Start:	1/30/95 3:00:00 PM	When:	2/27/95 2:27:42 PM	Done? ☐	
Scheduler: chuck	End:	1/30/95 4:30:00 PM	Mike	H Frese	Id: 585441009	
Station: CDROM	Start:	12/22/94 3:21:00 PM	When:	12/22/94 3:21:00PM	Done? ☐	
Scheduler: chuck	End:	12/22/94 3:21:00 PM	Bill	D Jones	Id: 675439023	

Figure 3-24   Schedule for the Orders Process Lesson

Station Schedule

Lookup: CBI 2   [◄◄][◄][►][►►]   [Edit]   [Close]

Station   **Description**

CBI 2

Start: 1/26/95 2:23:00 PM	S3		S3
End: 1/26/95 6:23:00 PM	Courses of Action		4
When: 1/25/95 2:26:14 PM	Courses of Action		COAs [1]
Done? ☐ Scheduler: chuck		Student: Frese, Mike H.	
Start: 1/30/95 3:00:00 PM	S3		S3
End: 1/30/95 4:30:00 PM	Orders Process		5
When: 2/27/95 2:27:42 PM	Orders Process		Order Procs [1]
Done? ☐ Scheduler: chuck		Student: Frese, Mike H.	

Figure 3-25   Station Schedule for Station CBI 2

3-25

3.3.3 Schedule a Course on CDs and Preparing a Student for Remote

These two functions are intended specifically for scheduling students who will be taking their CBI via CD-ROM on machines not connected to the network. The first makes it easier to schedule a student for an entire Course, rather than one Lesson at a time. The second creates a student database that the student then installs on the remote machine as a local version the TIS.

. The Schedule a Course on CDs function (shown in figure 3-26) is used to schedule a student for a whole Course using CDs as the method of delivery. All of the Course's Lessons are scheduled for the student when this screen is used. A list of CDs required can be generated from the reports menu.

The lookup field allows you to choose a Student/Course combination from all those registered. Double-clicking on the large button will select all the Lessons in the Course and schedule the student for them[11]. The "station" will be CDROM. All the scheduled Lessons will be visible in the Schedule by Student, Schedule by Lesson, etc. screens, and they may be edited or deleted using the Schedule a Student - Network function.

Figure 5-26   Schedule A Course (CD) Screen

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[11]   If the student is already scheduled via CDROM for one or more of the Lessons in the Course, you will get an error message. You may safely ignore this, because it implies the schedule data is already in the calendar.

There is no screen associated with preparing a student for remote. When you choose it from the menu, the function executes immediately. This option prepares the student database that can be installed on the student station hard disk. This database will be used to help manage the student's results and schedule information.

The option will execute for two or three minutes and indicate via a message box when it is done. **The student database, STUDENT.MDB in the TIS directory, can be used for all students who were on the schedule at the time the Student database was made.** Hence, it is advisable to schedule all the students you want to schedule, and then run this function once.

The STUDENT.MDB can be copied to a floppy disk for distribution to your students. If, at a later time you want to schedule another student, you should:

1. Schedule the student for the Course(s) on CD as above.

2. Execute the "Prepare a Student for Remote" function again to produce a new STUDENT.MDB to give this student.

You should not give this new one to students previously scheduled unless it contains updates for them as well.

Do not delete STUDENT.MDB from your TIS directory. The software wants to update it, not create one from scratch. Should you accidentally lose the one you have, make a copy of the TISTABLE.MDB file as STUDENT.MDB. That will give the TIS one to start with.

If you need to add to or edit the schedule for a student previously scheduled for remote use, you should first delete any old schedule data for the student that may be in the database, as your calendar may contain bookmark data from when he or she was scheduled, not the latest information. Then re-schedule the student for any Course(s) or Lessons, and make a new student database. The student software will not let the student update the schedule with the one you send until all results have been posted to the host database. (See Chapter 2, Section 6.) This prevents the student from loosing information on sessions that occur between the time you create a student database and the time it is loaded it onto the student's machine.

There is more information on scheduling this way in Chapter 2, Section 5. In addition, student stations connected to the Manager PC via a Local Area Network (LAN) can use CDs to provide lessons. There is a discussion of this in Appendix E.

SECTION 3.4: TIS INSTRUCTOR FUNCTIONS

The TIS Instructor menu is shown in figure 3-27. These functions are intended to help instructors and authors. A detailed history or progress report can be listed by student or by lesson. The lessons' exams, student opinions, and manual tasks completed are available from this menu. A lesson's status (i.e. completed, scheduled, downloaded, etc.) at a Student Station can be checked. A lesson may be made permanent at a Student Station, or a lesson may be marked for deletion from a Student Station. Also, the instructor can review questions posed by the students.
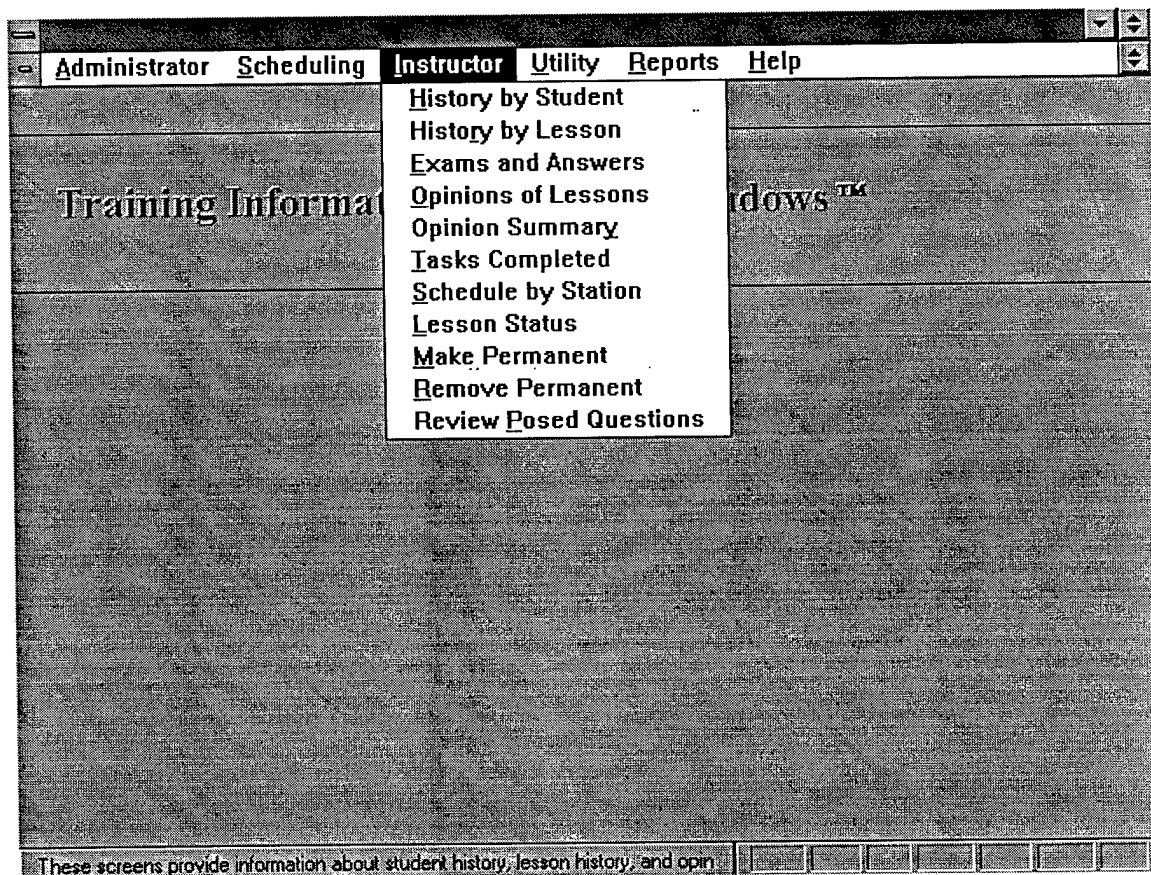
Figure 3-27   Instructor Menu

3.4.1 History by Student

The History by Student screen shows each CBI Lesson that a student has taken or started in the TIS. Information about each session is listed. This includes the date and time of the activity in the lesson, the grade, the hours spent, the bookmark, and whether the lesson was completed. Figure 3-28 provides an example the History screen.

Figure 3-28   A Student History

The student is selected via the lookup field, and his or her history for each lesson is shown in the details. Each instance in which the student accessed the lesson is shown, with the oldest on top. If there are more instances than will fit on the screen, a control arrow at the bottom of the screen will access the other records. Another arrow allows you to look at other lessons for the same (or other) student(s). The Done? flag indicates whether or not the student has completed the lesson. In the case of the ARNG courseware, the student is considered done when he or she has passed the pretest or final exam for the lesson.

In the example, the student has taken the lesson twice. The first time he spent half an hour in it, and the second time 1.1 hours, at which point he completed the lesson. The

bookmark is intended primarily to assist the student, but it does provide an indicator of the student's progress. Appendix C provides information on how to interpret the bookmark for the ARNG BN Battle Staff Courses. The ARNG program is not assigning grades for lessons, so there will be no entries in that field. The Approved? field can be ignored.

> This screen does not show data on non-CBI Lessons completed. That information is available through the Tasks Completed function.

3.4.2 History by Lesson

This screen shows the students that have taken or started a particular Lesson. The Course/Subject/Lesson is chosen with the Lookup field. Information about the students' progress is listed. Lesson History is also available in report form on the TIS Reports menu.

As with the Student History, there are two controls at the bottom of the screen that allow you to (1) view additional data for the same Lesson and (2) view data for other Lessons and Courses.

Lesson History

Lookup: S2 - 4: OPSEC v.001

Lookup: S2 - 4: OPSEC v.001

Course: S2   S2
Subject: OPSEC   4   Order: 005
Lesson: Operations Security   OPSEC   Order: 001   Version: 001

Id:	Name	Date	Done?	Grade	Hours	Bookmark	Approved?
0585441009	Frese, Mike H.	11/3/94 2:28:11 PM	☐		0.05	10000030	☐
1234567890	Smith, Henry D.	10/19/94 3:41:29 PM	☐		0.50	10000003	☐
1234567890	Smith, Henry D.	10/21/94 12:37:49 PM	☐		1.10	10000033	☐
1234567890	Smith, Henry D.	11/3/94 2:13:33 PM	☒		0.50	910000033	☐

Record: 1

Record: 6

Form View   NUM

Figure 3-29   Lesson History

3-30

3.4.3   Exams and Answers

A student's answers to a particular exam within a Lesson are shown on this screen (figure 3-30). The correct answer to the question is displayed next to the student's answer for each question. The student's score is displayed as well. While it is possible within the courseware to assign percentage-type scores, the ARNG courseware has chosen to use a one-point per question scoring.

Figure 3-30   Exams and Answers

The grade of Pass or Fail is assigned by the TIS based on whether the student correctly answered the required number of questions. This Pass/Fail threshold is supplied by the CBI author.

TIS recognizes four different exam designators:

P - Pretest

F - Final Exam

E - Exam

Q- Quiz

In the example shown, the student has taken Exam #1 in the Collection Plan Lesson, and passed it by getting six answers correct.

The Lookup field allows you to choose the student whose exam answers you wish to view. You will then be allowed to scroll through all the exams the student has taken by using the controls at the bottom.

These records are automatically sorted by Student ID, Course, Subject Order, and Lesson Order. Thus, each student's records will appear together, and the students will be sorted by ID. Within a student's records, the tests will be sorted by Course number, and within a Course, by the Subjects in Subject order, etc. For a particular Lesson, there will be exams, the final, the pretest, and quizzes. If a student takes the same exam more than once, each instance is reported separately.

You can use advanced filter/sort capabilities to re-order this information. This would be useful, for instance, if you wanted to look at one exam and go through all the students who had taken it. Appendix D provides information on how to perform the advanced queries.

The question numbers are absolute, not relative. Thus, question 1 may not have been the first question this student saw in this exam, but question 1 will be the same question for all who took this exam. This enables EMMii to provide aggregate data as well as individual data on exams (see the Answer Frequency Report).

3.4.4 Opinions of Lessons

The opinions of Lessons provided by the students are displayed on the form shown in figure 3-31. The lookup for this form is based on the Course/Subject/Lesson. The

specific responses from each student are then shown. The first set of details shows eachcriterion and the rating given by the student. These ratings are a single digit and normally range from 1 through 5. At the bottom of the screen there may also be responses to comment-style questions.

Figure 3-31   A Student's Opinion

The opinions are given anonymously. The opinions are posted during the response posting by the Student module.

The opinion questionnaires are developed as follows:

- A standard set of questions along with rating scales for each is entered into the TIS via the "Opinion Criteria Descriptions" and "Criterion Answer Descriptions" functions on the TIS Utilities menu.

- When a CBI author develops a Lesson, he or she chooses which of the questions to use as the questionnaire. Only these questions and their responses are used for that Lesson.

For the ARNG, a standard set of questions has been developed and is stored in the TIS. You can view these via the utilities functions mentioned above.

You can also get a summary of the student's numerical opinions via the Opinion Summary function. An example is shown in figure 3-32. The average rating, minimum, and maximum are provided for each criterion, as well as the number of responses received. As on the Opinion screen, the lookup field allows you to select the Course/Subject/Lesson whose summary you want.

A description of the ratings can be obtained by clicking the list box control located to the left of the <Answers prompt for a criterion.

Figure 3-33   An Opinion Summary

3.4.5   Tasks Completed

As was mentioned in section 3.2, you can add non-CBI Lessons to a Subject. As with the CBI, there may be tests or other activities associated with such Lessons that need to be recorded. The TIS calls these activities "tasks." The Task Completed function

(figure 3-34) is used to manage (add, edit, or delete) such tasks completed by the student. **Tasks may be added only for non-CBI Lessons.**

Figure 3-34   Tasks Completed Screen

To add a task data for a student:

1. Press the Add button.

2. Select the student using the By Name or the By ID list box control.

3. Select the Course, Subject, Lesson, and Version (only non-CBI Lessons are displayed here).

4. Enter the name of the task in the Task field and the task number in the Number field. The Task Name can be up to 16 characters.

5. Enter the task completion date.

6. Select Pass or Fail for the grade.

7. Press the Save button to save the information.

You may also use this screen to view and edit information on non-CBI tasks completed.

3.4.6 Schedule by Station

The screen in figure 3-35 may be used to inquire about the schedule at a student PC station. The Lookup field allows you to select a particular station. This screen is organized in a master/detail layout, where the station whose schedule records are being displayed is in the master section and the actual schedule records are displayed in the detail section of the form, ordered by the start date/time. Additional scheduling records may be edited or added in the detail section, but use of this screen for this purpose is not recommended. The Schedule a Student - Network function is better suited for editing.

Figure 3-35   Station Schedule for Station CBI 2

3.4.7 Lesson Status

When using this software to manage a network of student stations, it is often important to know which Lessons have been downloaded to which stations. This function (see figure 3-36) serves that purpose by displaying the status of the Lesson(s) on a station. Since the ARNG is not using networked PCs, this function will be of little use. Its description is included for completeness.

Lesson Status on a Station

Station	Course	Subject	Lesson	Version	Name	Permanent?	Loaded?
CBI 1	S2	2	R&S Plan	001	Reconnaissance and Surveil	☐	☒
CBI 1	S2	5	Intell Est	001	Intelligence Estimate	☐	☐
CBI 1	S2	0	Introduction	001	Introduction to the S2 Course	☐	☒
CBI 1	S2	6	S2 Ops	001	S2 Operations	☐	☒
CBI 1	S2	3	Colctn Plan	001	Collection Plan	☒	☒
CBI 1	S2	7	BN HQ Coor	001	Battalion Headquarters Coord	☒	☒
CBI 1	S2	1	IPB	001	Intelligence Preparation of th	☐	☒
CBI 1	S2	4	OPSEC	001	Operations Security	☒	☒
CBI 2	S2	7	BN HQ Coor	001	Battalion Headquarters Coord	☒	☒
CBI 2	S2	5	Intell Est	001	Intelligence Estimate	☒	☒
CBI 2	S2	2	R&S Plan	001	Reconnaissance and Surveil	☐	☐
CBI 2	S2	6	S2 Ops	001	S2 Operations	☒	☒
CBI 2	S2	3	Colctn Plan	001	Collection Plan	☒	☒

Record: 25

Figure 3-36   The Lesson Status Screen

The Lookup field is used to select the station of interest. A Lesson should have a status of Loaded unless the station name is CDROM. For any other station, if the Loaded status is not set, then it indicates that an error occurred during the download of that Lesson to the station. If this occurs:

1. Correct the error at the student station (most likely the station ran out of disk space).

2. Delete the Lesson status record for this Lesson and station. To do this, first press the Edit button. Then select the desired record by clicking in the leftmost column (the one before the Station column). Then press the Delete key (or you may select "delete" record from the Edit Menu).

3. Press the Save button. The Student software will now attempt to download the Lesson again.

To explain how this works, it should be understood that for networked PCs, the Student Station software attempts to download a Lesson's files at the date and time set in the calendar[12]. When it begins this process, the software places an entry for the Lesson and station in the TIS lesson status table. When the download is completed, the entry is marked as loaded.

As long as there is an entry in this table for the Lesson/station combination, the Student Station Software will not attempt another download. If, however the entry is removed and the download is still scheduled in the calendar, the Student Software will re-try the download.

When all the students scheduled for the Lesson that day at that station have completed their sessions, the Student Station software automatically deletes the Lesson's files from the student station, deletes the entry in the status table, and deletes the data from the calendar. Once a Lesson is loaded at a station, it can be made permanent (see below) so the delete does not occur. Such Lessons are shown marked as "permanent" in the lesson status.

3.4.8 Make Permanent and Remove Permanent

These functions are used to mark a Lesson's files as permanent/not permanent on a station (see discussion in 3.4.7). The layout of these screens is identical to the Lesson Status screen. The Lookup field is used to select the station of interest. Only Lessons that are loaded, but not permanent are displayed in the Make Permanent screen. The Permanent field can be toggled with the mouse or the space bar to change the status to

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[12] See Section 3.3.1, Schedule a Student - Network.

permanent. On the Remove Permanent screen, only stations with Lessons marked loaded and permanent are displayed.

3.4.9   Review Posed Questions

This screen is used to review a student's questions about topics in a Lesson. Whether or not students are permitted to pose questions is determined by the author of the courseware[1]. When the student creates a question, certain information is recorded along with the question. That information is shown on this screen.

Posed Questions

Lookup: Andre, Charles R.

| Id: | 0987654321 | Sample | John | Q | Station: | CDROM |

Course: Common Core — CC

Subject: Offense Fundamentals — 3

Reply Mailed: ☐

Lesson: Offense Fundamentals — Off Fndmtls — Version: 1

Posed Question: Topic: [   ]   Date: 15/94 12:33:38 PM

I still don't understand the answer to the third question on the first exam.

Figure 3-37   Posed Questions

Normally an administrator or instructor at the armory would be responsible for answering these questions. The answers can be provided through Windows for Workgroups E-mail, by telephone, etc. When a response in provided, the responder should either mark the question as "Reply Mailed" or delete the posed question from the database. Either of these may be accomplished with this screen.

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[1]   In the ARNG Battle Staff Course, the "Pose a Question" screen is available through the Options button.

The individual armory or training establishment should set its own procedures for who will respond, how to respond, and how to handle old questions.

SECTION 3.5: TIS Utilities

The utility functions shown in figure 3-38 are only used by the system administrator, and they are used primarily for system setup.
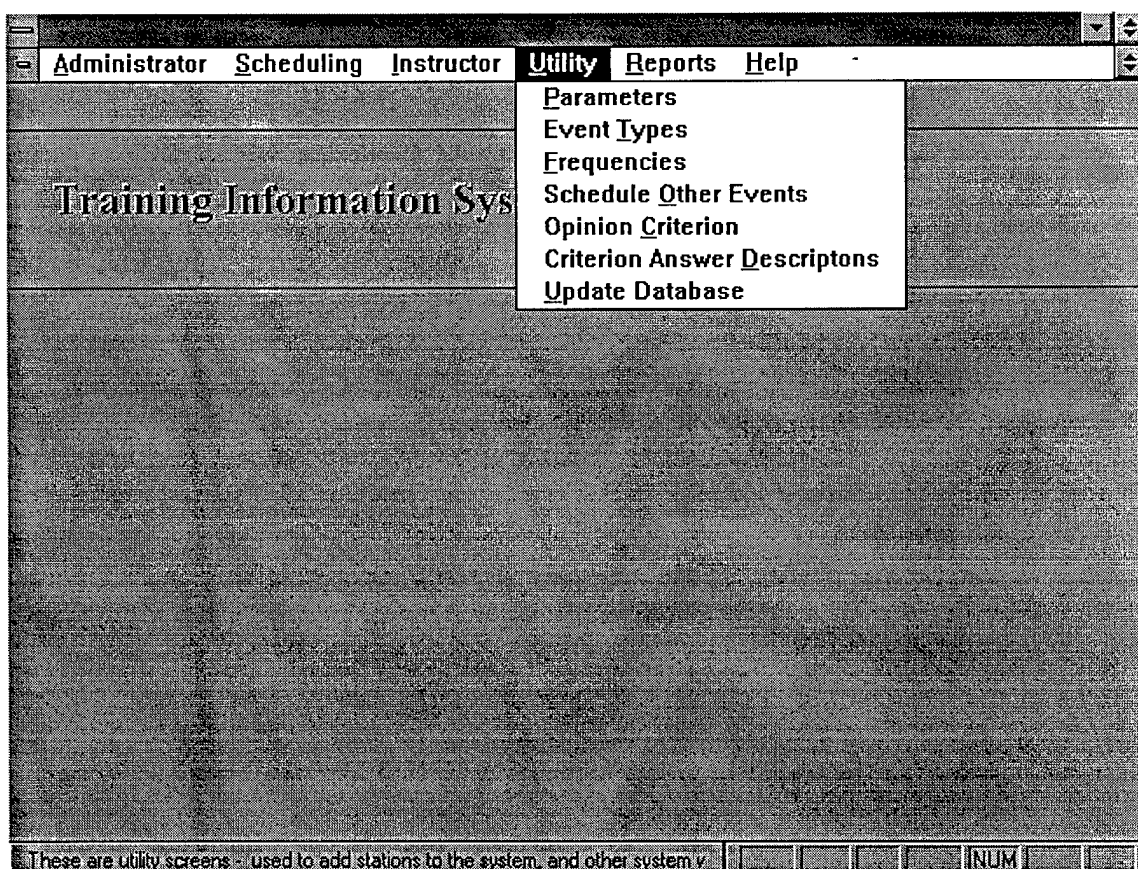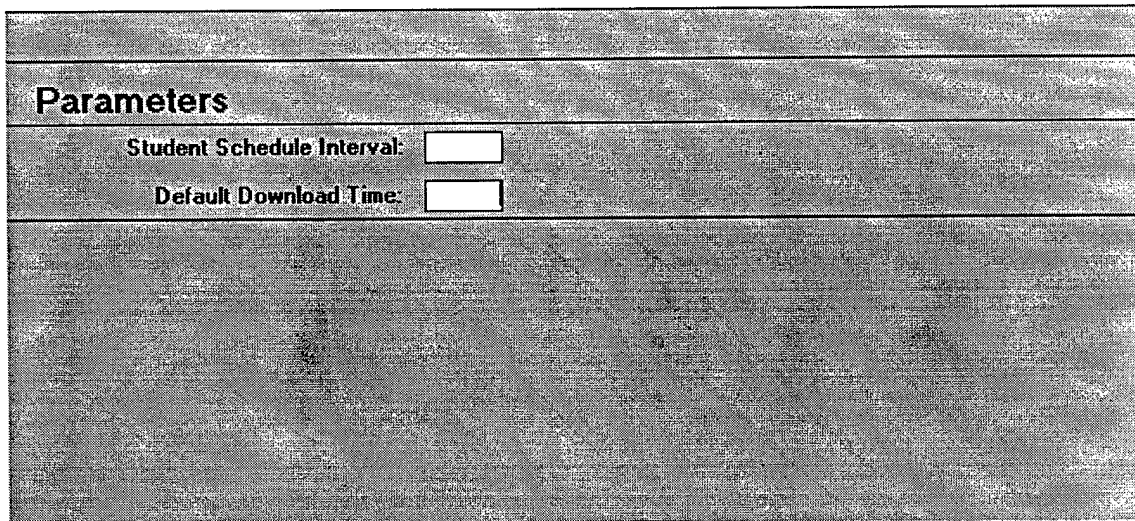
Figure 3-38   TIS Utilities Menu

3.5.1   Parameters

The parameters available through this function (figure 3-39) are used for scheduling. The scheduling interval is the period of time (HH:MM) the Student Station software

waits between checking the calendar for events to process. The default download time is a standard time of day to initiate downloads that have been scheduled for a future date. Section 3.3.1, Schedule a Student - Network, contains more details on the calendar and its use. Since the ARNG is not using a network of student stations with scheduled downloads, this function has no utility for the ARNG system administrator.

Figure 3-38   The Parameters Screen

3.5.2   Scheduling Other Events

EMMii was designed to be expandable to meet requirements of other users. One anticipated expansion would be the addition of other system events that could occur automatically via the TIS calendar. Should it be necessary to add new types of events, utilities are available to add the event types, add frequencies at which the events are to be performed, and to perform the scheduling of the event(s). The Event Types function (figure 3-39) currently shows only two event types. One is the scheduling of a Lesson for download. The other is an anticipated employee data update. The later function could be used at industrial sites where weekly or monthly updates of employee records are available for incorporation into the training database.

3-41

The Event Types function can be used to add new event types to the list. The new events could then be scheduled using the "Schedule Other Events" function, also available on the Utilities menu.

Figure 3-39   The Event Types Screen

Currently EMMii supports four different frequencies at which events may occur. These are shown in figure 3-40. The Frequencies function can be used to add new intervals. This could be of use, for instance, if one needed to add a daily or monthly operation to the system.

Each Frequency code has a Description of the time period (interval), the corresponding interval code (Units) used for scheduling, and the corresponding number of time periods (Period) to add to the currently scheduled date and time of the event. These frequencies are used in the "Other Events" screen and the "Schedule a Student - Network" screen. The following are the pre-defined unit codes and their corresponding time periods.

Time Period	Units	Time Period	Units
Year	yyyy	Weekday	w
Quarter	q	Week	ww
Month	m	Hour	h
Day of Year	y	Minute	n
Day	d	Second	s

3-42

Figure 3-40   The Frequencies Screen

The function shown in figure 3-41 allows you to place these other events on the calendar.   Each event is assigned a type, a frequency, and a date/time to perform the event.   When an event's time has come, the Calendar of Events processing program performs the specified activity.   For example, other events could include an event to update the Student Table automatically with information from a corporate human resources database. The standard EMMii software currently does not process any events except for scheduling of Lessons.   The Calendar of Events program is custom software written to address the needs of a user site.

Figure 3-41   Scheduling Other Events

3.5.3 Opinion Functions

As discussed in section 3.4.4, student opinion data can be gathered and reported by EMMii. Most sites will have their own standard list of course assessment questions to be used. Individual CBI authors may choose to use any or all of these questions in their Courseware. These functions provide a way to record these standard questions for display in the TIS reports and screens.

The Opinion Criteria Description function (figure 3-42) allows you to add or edit these descriptions. Each criterion has a number that indexes into this table to get the corresponding description. The authors of the CBI specify which of these questions to use by specifying their numbers. For example, opinion criterion number 18, if used to evaluate a lesson, will always be used to evaluate "The vocabulary and educational level of this Lesson were too elementary."

There are two types of criterion denoted by the Type field. A type of "R" indicates that the criterion is a rating, a type of "C" denotes that the criterion is a comment.

Criterion	Description	Type
18	The vocabulary and educational level of this lesson were too elementary.	R
19	The computer-based "exercises" were very helpful in learning the material.	R
20	I would recommend extensive modification to this lesson before giving it to other students.	R
21	I believe this is an effective teaching method for the National Guard.	R
22	I feel more confident in my ability to perform combat related staff functions after completing this training.	R
23	Please summarize, in one sentence, your overall impression of this lesson.	C
24	In one sentence, state what you think was the most valuable component of this lesson (Student guide, job aids, FMs, CBI, exercises, etc.).	C

Opinion Criterion Descriptions — Lookup: [ ] Edit Delete Add Close

Figure 3-42   Opinion Criteria Descriptions

Rating-style criteria have a numerical scale associated with them and an interpretation of that scale. You can enter or edit these scales using the Criterion Descriptions screen shown in figure 3-43. Each criterion has its own associated scale. However, since many questions may use the same scale, you can highlight all of the answers from a previous criterion, copy them, and paste them into a new one. The lookup field allows you to choose the criterion whose ratings you want to edit.

Comments must have an answer number of 0.

Figure 3-43   Criterion Answer Descriptions

3.5.4   Update Database

This function is a system maintenance item. When new tables are added to the TIS database during an upgrade of the software, the system administrator will be instructed to perform this operation. The functions performed depend upon the nature of the database upgrade being performed.

SECTION 3.6: TIS REPORTS

The are numerous reports available through the TIS, as shown in figure 3-44.
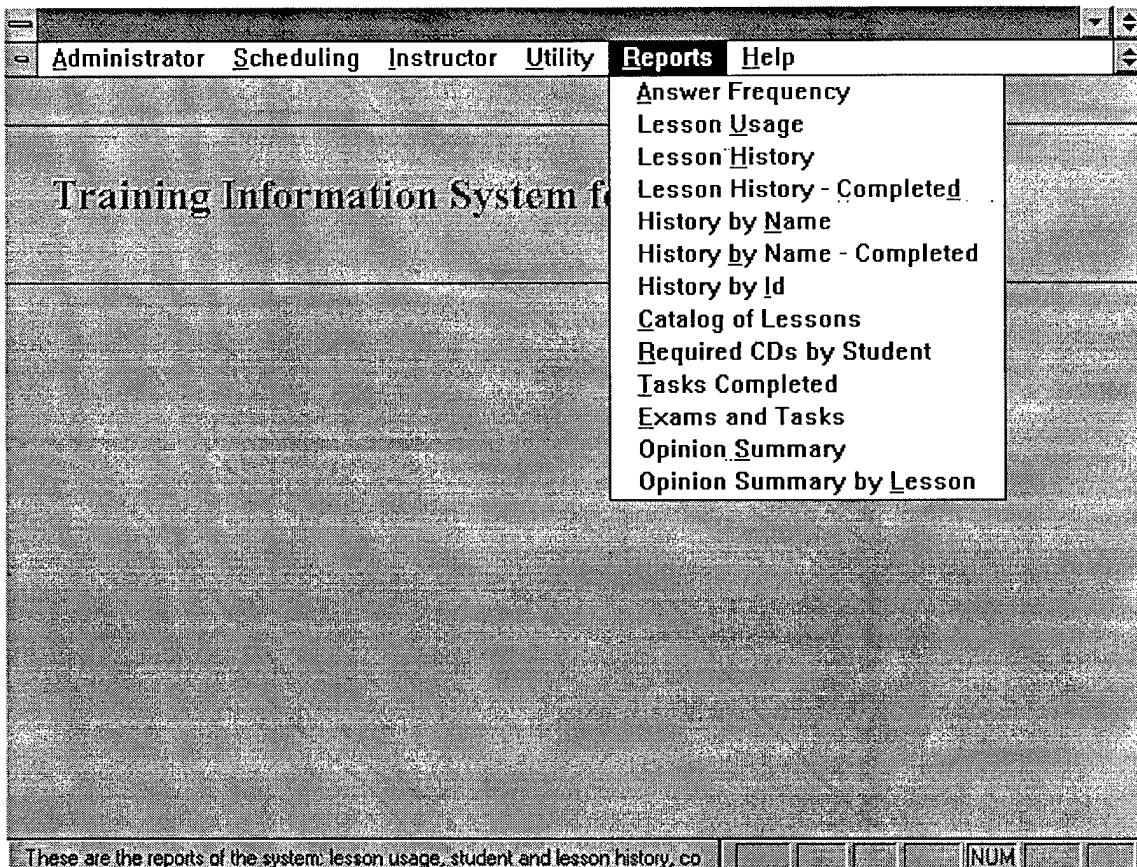
Figure 3-44   TIS Reports Menu

The reports will frequently include an initial record selection dialog, such as the one shown in figure 3-45. In this example, the user has asked for a report on answer frequencies. This report could cover all Courses, a specific Course, a specific Subject, or a specific Lesson. By choosing a report for a particular Subject (via the radio button), two fields for specifying the Course and Subject become visible. This is used to filter the information put into the report.

After the selection criteria have been entered, the report is generated on the screen with slide bars and options buttons across the top (figure 3-46). You can use the side bar to move up and down a page or the bottom bar to go from page to page or left to right on the page using the slide action. If the report has more than one page, the page control at the bottom of the screen will advance through the pages. The Zoom button shows a whole page of the report, and the magnifying glass can be moved to a section of interest and clicked for a closer look. You may print the report, change the selected printer using the setup, or cancel the current report using the buttons on the tool bar.
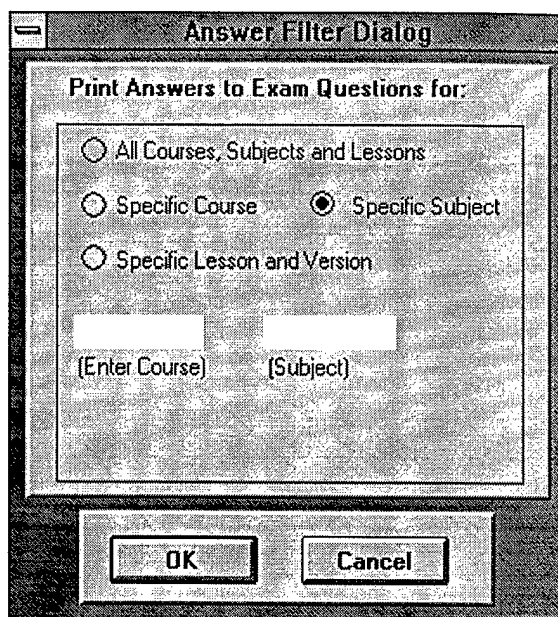
Figure 3-45   A Typical Report Record Selection Dialog

Figure 3-46   A Typical On-Screen Report

3.6.1 The Answer Frequency Report

This is a report that prints the frequency of answers selected for each question within an exam. The correct answer is displayed and the percentages correct for all answers is calculated. This report is useful to instructors and authors to identify tricky or bad questions and potentially faulty instructional materials. It helps direct instructors to cover difficult materials more carefully. The report can print out the exams and answer frequency summaries for all Lessons or a specified Lesson.

Exams for different Lessons will appear on separate pages.

Course, Subject, Lesson, Version Type and #	Question and Answer	A (s)	B (s)	C (s)	D (s)	E (s)	% OK
S2							
Collection Plan-3#4							
Collection Plan Colctn Plan[1] #1							
E # 1							
	001 C	1	0	2	5	2	20.00%
	002 A	10	0	0	0	0	100.00%
	003 E	0	2	0	0	8	80.00%
	004 A	2	0	2	0	6	20.00%
	005 A	5	0	0	2	3	50.00%
	006 B	0	8	2	0	0	80.00%

Figure 3-47   An Extract from an Answer Frequency Report

3.6.2 Lesson Usage Report

This report prints the statistics about the usage of each Lesson: the total hours spent by all students, the average hours taken to complete, the minimum and maximum hours taken to complete, and the standard deviation. This information can be helpful for scheduling and for directing training resources based on the time to complete and the total time spent in the Lesson. This report can be generated for all Lessons or for a particular Course, Subject, or Lesson.

3.6.3 Lesson History Reports

There are several reports that provide data on students and Lessons. The Lesson History report lists information about the progress in the Lesson for each of the students that have taken the Lesson. Each session within the Lesson and each student is displayed. The reports can be generated for a particular Course, Subject, or Lesson or for all Lessons. The information on the report is the same as that available through the Lesson History function on the Instructor menu.

There is also a Lesson History - Completed report that shows the same data but only for those students who have completed the Lesson(s) shown.

Similarly there are History by Name reports that allow you to see the Lesson history for a particular student or all students, sorted by name. You can also get this history sorted by student ID.

3.6.4 Catalog of Lessons

This report shows the structure of the Courses, Subjects, and Lessons in the TIS. A brief description of each is printed, and the Subjects and Lessons are printed in order within each Course. The report can be generated for all Courses or for a particular Course.

3.6.5 Required CDs Report

This report lists CDs required for students who have been scheduled to take a Course via CD-ROM.

3.6.6 Tasks Completed and Exams and Tasks Report

The Tasks Completed report lists the non-CBI tasks completed by a student. These tasks are entered into the TIS using the associated screen from the Instructor menu. (See section 3.4.5).

The Exams and Tasks report provides date and grade data for exams (within CBI Lessons) and tasks (within non-CBI Lessons) sorted by Lesson and by student. The report can be generated for a particular student ID or for all students.

3.6.7 Opinion Reports

Summaries of opinion ratings for those criteria that use numerical ranking systems are available in these reports. The first, Opinion Summary, is averaged over all Lessons in the database. This could be useful in providing a baseline for comparison of individual Lesson data. The second report, Opinion Summary by Lesson, provides the summarized ratings for each criterion for each Lesson.

APPENDIX A - INSTALLATION

Installation of EMMii requires use of the 4 disk installation set. You must have Windows for Workgroups (WFW) installed on the machine to perform any of this. If you are installing Student S/W and want to be able to access the Host at all, you must be connected to the Host machine (preferably with the drive where EMMii will reside mounted as the Z drive) to finish the installation. This can be done either on a LAN or when connected via modem.

You can run the initial setup (steps 1-3 below) without being on the network. Section A.1 installation instructions apply only to installing the Student Station software on a machine. If you should need to reinstall the TIS software, see section A.2.

SECTION A.1: INSTALLING STUDENT STATION SOFTWARE

1. **If EMMii has never been installed on the machine, go to step 2.** If you already have the Student Station Software on your machine, delete the following from your \Windows directory: Student.ini, MSACESS.ini, ODBC.ini, ODBCINST.ini, and ODBCISAM.ini. If you want to use the old STUDENT.MDB you have, move it to another location on your disk, as the installation will overwrite it. When you have completed the installation, replace the installed STUDENT.MDB with your old one.

2. Use the 4 disk set to install EMMii. Put Disk 1 in the A: drive and run SETUP.EXE. It will ask several questions:

    (a) What do you want to install? -

    For Student machines, choose EMMii Student only. In no case should you install the Author software.

    (b) Where do you want the EMMii S/W?

    This is the directory where the Student S/W will go. Choose C:\EMMII (or D:\EMMII if it is on your D Drive.)

    (c) Where is the Host DB?

    Set this as C:\EMMII. We will attach the host machine as the Z: drive when we hook up to it.

(d)   Where do the checked in lessons go?

This is normally the same place as the host DB, but in a "Lessons" directory, so something like C:\EMMII\LESSONS. **This directory will not be used for the ARNG.** It is where "checked-in" lessons go in the networked version.

(e)   Where do the CD lessons go?

If your CD is drive D, reply D:\CD; if it's drive F, reply F:\CD.

You must be connected to the Host machine to perform the remainder of these steps. This connection can be via a network connection or the ShivaNet modem.

4.   On the Control Panel (Available in the Main group) you will find ODBC. Open it and it will show 2 databases, TIS and HOST.

4.1 First, select Host.

4.2 Then choose Setup. (See figure A-1(a).)
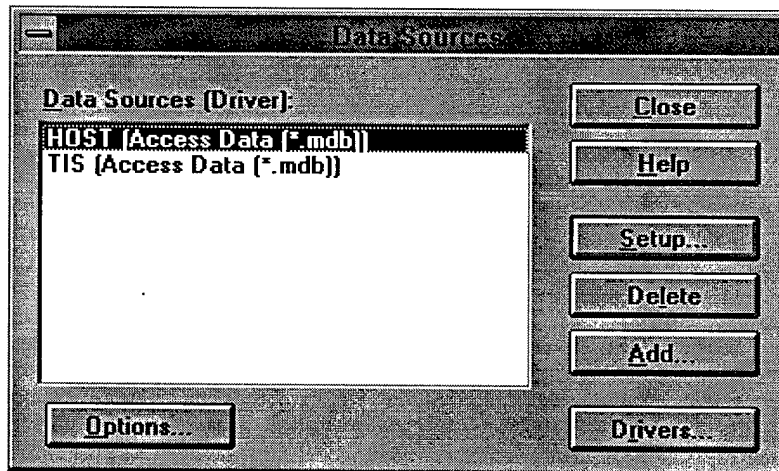
Figure A-1(a)   ODBC Showing 2 Databases

ODBC Microsoft Access Setup

Data Source **N**ame: HOST

Description: Main database

Database

Database: Z:\emmii\tis\tistable.mdb

OK | Cancel | Help

Select Database... | Create Database...

Options>>
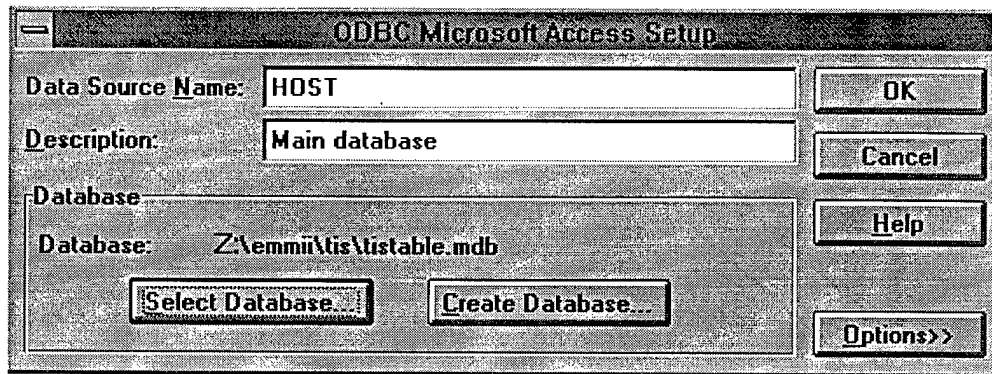
**Figure A-1(b) HOST Should be set to the TISTABLE on the Host Machine
(set up as the "Z" drive)**

4.3 If HOST is not currently the TISTABLE.MDB on the Host machine (Z drive[1]) as shown in figure A-1b, use Select Database and find the installed TISTABLE.MDB. (figure A-1(c))

4.4 Use OK to get back to screen 1(b) and choose Options. This will let you select the system MDA, as shown in figure 1d.

Select Database

Database **N**ame:

tistable.mdb

tistable.mdb

Directories:

f:\emmii\tis

z:\
emmii
tis

OK | Cancel | Network...

List Files of **T**ype:

Access Databases

Dri**v**es:

z:
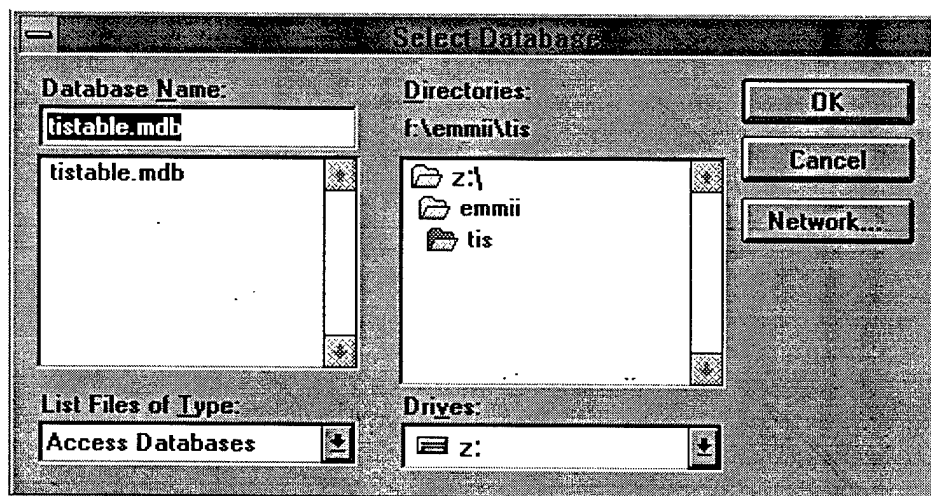
Figure A-4(c) Choose the EMMii\TIS\TISTABLE for the Host Database

4.5 Choose the TISTABLE.MDB in the Host's TIS directory. This tells the student S/W where to upload results.

4.6 Use OK then close to get out of the ODBC.

---

[1] Section 3 of this Appendix describes mounting the Z drive, in case you are unfamiliar with Windows for Workgroups.
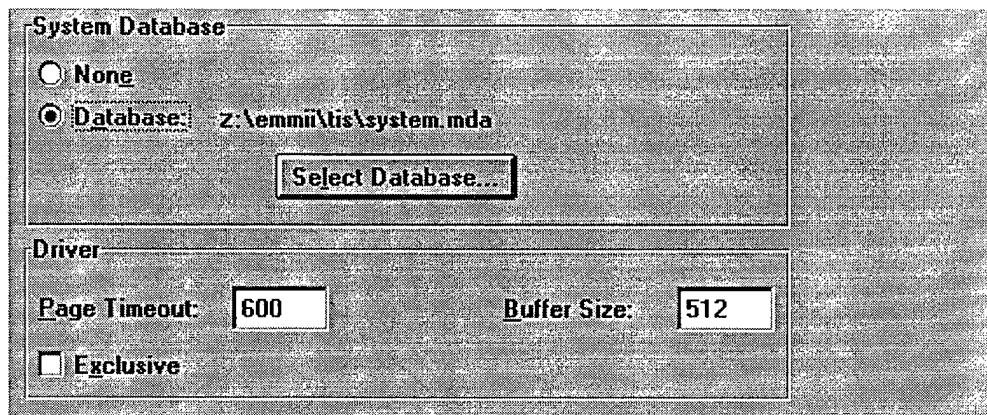
Figure A-1(e) Choose the System.mda in the Host Machine's TIS Directory

5.   If this computer's ID is already in the station table (in other words, if you are re-installing the software), go to step 6. Otherwise you need to get this station into the host computer's station table. To do that, you go back into ODBC; only this time choose TIS (not HOST). **Set this database to the same one you set HOST to in step 4**. (We'll change it in a minute.)

When you installed EMMii, you got an icon like the one shown in figure A-2 in the EMMii program group. This will let you add the new station to the Host's list of stations. Double-click on EMMii setup, and you will see the screen shown in figure A-3, with the computer's Network name filled in.

Microsoft

EMMii Setup

Figure A-2

EMMii Station

Setup Icon

You should enter a short name that is more descriptive for the Station Name, and a longer one for a station description. Then press Apply. This will enter the network name and the information you entered into the Host Station Table, making this station known to the Student S/W and the Host. You can delete the EMMii setup from the machine when you're done. You shouldn't need to run it again.
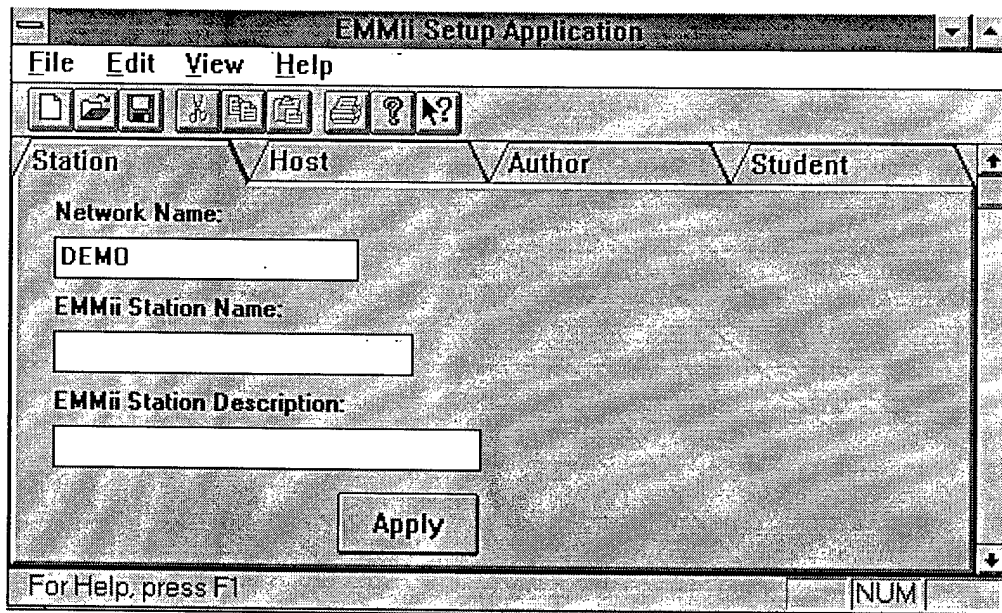
Figure A-3   Setting Up a Station Name

6. Now we want to tell the student S/W where to post results locally. This is the "TIS" database to the S/W. In the ODBC, point the TIS to the STUDENT.MDB EMMii installed on the student station. It should look something like figure A-4. Yours may say C:\EMMii\Student\student.mdb.
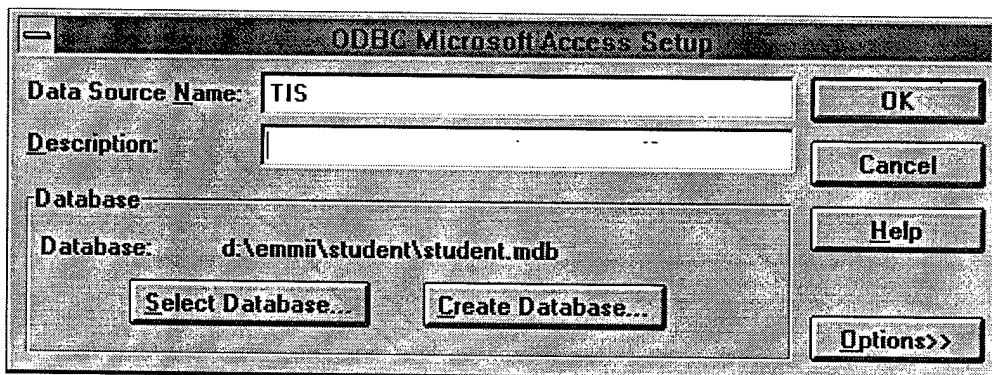
Figure A-4 (a)   Selecting the TIS Database on a Student Station
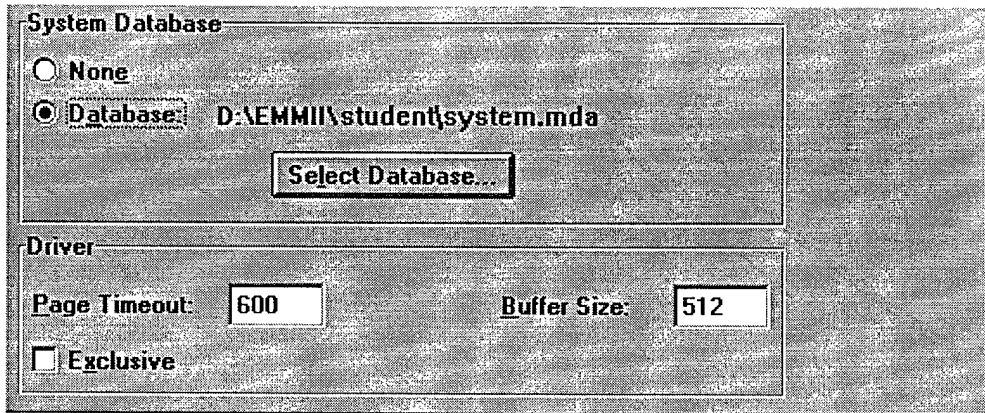
Figure A-4(b) Selecting the System Database on a Student Station

This is telling the student S/W where to get its schedule and where to put results (on the student machine). Before you leave the screen in figure A-4(a), press Options and make sure the System database is pointing to the System.mda in your EMMii\Student directory, as in Figure A-4(b). As before, use OK, then Close to register all your settings (even if you didn't change anything.)

7. Optional information

    The student.ini file in your Windows directory contains some options you may want to set. You may edit this file using Notepad or Write. Be sure not to convert to Write format, however. *You should not do this while you have Student.exe running - your changes will not be noticed or saved.*

    First, notice the "Move directory 1 = variable" in the [CD directories] section. This tells EMMii to copy the variable directory off the CD onto the student's HD when he or she takes a lesson. **This line must be there**. If you also want the video directory copied, add the line "Move directory 2 = video", right after the other one.

    In the [specials] section there's a "National Guard = 1" line - leave that alone. Then there's a "Subject Menus = 1". That means the menus should say "Load Subject" not "Load Lesson" etc. If you want them to read "lesson" set Subject Menus to 0.

    > **When steps 1 through 6 are done, you are ready to schedule students for this station.**

SECTION A.2: INSTALLING TIS

1. If TIS has never been installed on your machine before, go to step 2. If you already have EMMii or TIS on your machine, delete the following from your \Windows directory: Author.ini, TIS.ini, MSACESS.ini, ODBC.ini, ODBCINST.ini, and ODBCISAM.ini. **You will probably want to copy the TISTABLE.MDB you currently have to a safe place, as re-installing the TIS will delete your old copy. When you've completed the installation (and before step 3), replace the new tables with the old ones.**

2. Use the 4 disk set to install EMMii. Put Disk 1 in the A drive and run SETUP.EXE. It will ask several questions:

    (a) What do you want to install? -

    For the main (Host) Machine, choose EMMii Host. If you also want to install the Student Station software on this machine, you may do so. In no case should you install the Author software.

    (b) Where do you want the EMMii S/W?

    This is the directory where the TIS (and Student S/W) will go. Choose C:\EMMII (or D:\EMMII if it's on your D Drive).

    (c) Where is the Host DB? -

    This will probably be C:\EMMII\TIS, assuming C:\EMMII was your answer to question (b) . This is where you want the Main (armory) database to reside.

    (d) Where do the checked in lessons go?

    Normally this is the same place as the other Host software, but in a "Lessons" directory. So it's something like C:\EMMII\LESSONS. **This directory will not be used for the ARNG.** It is where "checked-in" lessons go in the networked version.

(e) Where do the CD lessons go?

If your CD is drive D, reply D:\CD; if it's drive F, reply F:\CD. (This is asked only if you are installing Student S/W.)

3. When setup is done, you should have an EMMii program group with TIS[2] in it. Open up the TIS icon. It will ask for a user name/password. Use "Chuck" and no password for now. It will try to attach to tables on a C drive. If you put the EMMii Host DB S/W elsewhere (question (c) above), you'll get an attachment error. Just say Cancel when it gives you the error message. Then go to the Administrator Menu and select Attach Tables. (See Section 3.2.9) You will get a screen with a button that indicates "GLOBAL PATH CHANGE". Use it to select TISTABLE.MDB wherever you put the TIS S/W. Say *yes*, you want to reattach all the tables. This will get you a set of TIS forms that talk to the database you just installed.

> Reopen TIS and set a password for CHUCK, because this account has administrator privileges.

4. If you also installed the Student Station software on this machine, you should follow steps 4 and 6 in Section 1, Installing the Student S/W. However, **both the TIS and the HOST databases should attach to the TISTABLE.MDB that is in the TIS directory**, not the STUDENT.MDB or a TISTABLE on the Z: drive. (This machine will be everybody else's Z: drive.

SECTION A.3: MOUNTING THE Z: DRIVE

This is provided just in case you are unfamiliar with WFW.

Attaching to a network drive can only be done when you are "on the net" either by wire or by modem. In File Manager, go into the Disk menu and exercise "Connect Network Drive". The screen will look something like the one in figure A-5. The list labeled "Show Shared Directories" should show the other machines on your network. Choose Z: as the drive name, and select the machine and drive where your Host database

---

[2] The Student S/W will be there as well if you installed it.

resides (the TISTABLE.MDB at the armory).   Say OK, and you have the "Z:" drive mounted.[3]
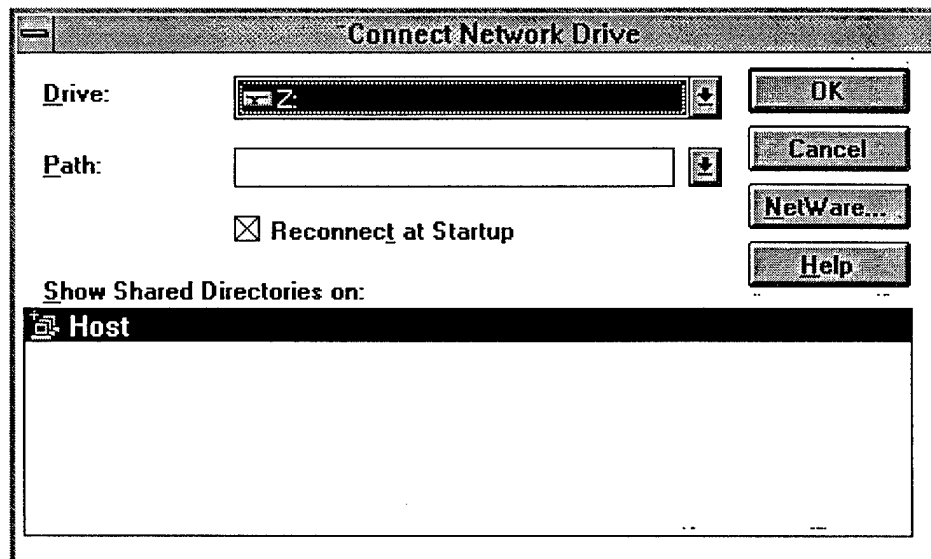
Figure A-5   Connecting a Network Drive in WFW

---

[3]   The system administrator must have established this drive or directory as "shared" with full read/write permission.

APPENDIX B - TIS FUNCTIONS

The following table shows the TIS functions and their respective menus. Some have been annotated to indicate that they have restricted use. The annotations are as follows:

α - Used only by the system administrator

η - Only used for the networked version, where lessons are uploaded and downloaded (not appropriate to the ARNG)

σ - Used only at initial system setup

Function	Menu	Description
Add Users	Utility	Add new users to TIS and assign roles
Answer Frequency	Reports	Report on distribution of exam answers
Attached Tables	Administrator	Function for attaching TIS screens to a different database (α)
Catalog of Lessons	Reports	List of Courses with their Subjects and Lessons
CD Labels	Administrator	Add/ Edit labels for CD's (α)
Change Password	Administrator	Change a TIS user's password
Course Registration	Administrator	Register a student for a Course
Courses	Administrator	Add/Edit/View Course data
Criterion Answer Descriptions	Utility	Add/Edit/View definitions of questionnaire criterion answers
Event Types	Utility	Types of events that can go on calendar
Exams and Answers	Instructor	View students' answers to exam questions
Exams and Tasks	Reports	Report, by student, of CBI and non-CBI Lessons taken
Frequencies	Utility	Set period(s) at which continuous events may occur (σ)
History by ID	Reports	List(s) of CBI Lessons taken, sorted by student ID
History by Lesson	Instructor	Screen list of students who have used a CBI Lesson
History by Name	Reports	CBI Lessons taken, sorted by student name
History by Name - Completed	Reports	CBI Lessons taken and completed, sorted by student name
History by Student	Instructor	CBI Lessons used by a particular student
Lesson History	Reports	List(s) of students who have used a CBI Lesson or Lessons

Function	Menu	Description
Lesson History - Completed	Reports	List(s) of students who have completed a CBI Lesson or Lessons
Lesson Status	Instructor	Screen showing which Lessons are loaded at a particular station (η)
Lesson Usage	Reports	Report showing amount of time students spend in individual Lessons
Lessons	Administrator	Allows user to View/Edit/Add information about Lessons
Lessons- List	Administrator	An on-screen list of Lessons by Subject
Make Permanent	Instructor	Makes a loaded Lesson reside permanently at a station η
Opinion Criterion	Utility	Allows user to add/edit the questionnaire questions (α)
Opinion Summary	Instructor	Screen showing averaged ratings from questionnaires for a given Lesson
Opinion Summary (Report)	Reports	Report showing questionnaire rating averaged over all Lessons in the TIS
Opinion Summary by Lesson	Reports	Report showing averaged ratings from questionnaires for one or several Lessons
Opinions of Lessons	Instructor	Screen showing questionnaire data (including comment-type responses) for a Lesson from a single student. The student is not identified.
Parameters	Utility	Set up time intervals and other system parameters (σ)
Prepare a Student for Remote	Scheduling	Create a Student DB for use with CD-ROM Lessons
Remove Permanent	Instructor	Delete a Lesson's status of "permanent" at a station (η)
Required CD's by Student	Reports	A list of CD's required by an individual student or all students
Review Posed Questions	Instructor	Shows questions posed by users from within the courseware
Schedule a Course on CD's	Scheduling	Adds all the Lessons in a Course to the student's schedule
Schedule by Lesson	Scheduling	A screen showing the students and stations which are scheduled for an individual Lesson
Schedule by PC Work Station	Scheduling	A screen showing the Lessons and students and stations which are scheduled at an individual student station (η)

Function	Menu	Description
Schedule by Station	Instructor	A screen showing the Lessons and students and stations that are scheduled at an individual student station (η)
Schedule by Student	Scheduling	A screen showing the Lessons and stations which are scheduled for an individual student
Schedule by Student - Network	Scheduling	Add/View/Edit schedule for a single student
Schedule other Events	Utility	Used to add new continuous functions (σ)
Students	Administrator	Add/View/Edit data about individual students
Students by ID	Administrator	List of students according to their ID's
Students by Name	Administrator	List of students according to their last names
Subjects	Administrator	Add/Edit/View Subject Data
Subjects - List	Administrator	List of all Subjects in a Course
Tasks Completed	Instructor	Add/Edit/View data about non-CBI Lessons taken by students
Tasks Completed (Report)	Reports	Report on tasks taken by students
Update Database	Utility	Used to add a new table to the database (σ)

APPENDIX C -- BOOKMARKS

Bookmarks have been used in the ARNG courseware to track a student's progress within a Lesson. The most noticeable effect will be from the student's perspective. For example, when a student first takes a Lesson for credit, he or she is required to take the Pre-test. Once this is done, the courseware sets a "bookmark" for the student that is recorded in the student's local database, and eventually at the Host database. This bookmark indicates that the Pre-test has been taken. Should the student re-enter the lesson at a later time, the system will not require that it be retaken.

Also, the bookmark is used to keep track of intermediate exams the student may have passed in the courseware so that indicators (such as thumbs up, or italicized buttons) can be provided.

The bookmark is always a 9 digit integer. For the ARNG Battle Staff courseware, this number is interpreted as shown in table C-1.

Digit	Definition	Interpretation of Value	
9th	Indicates Final Exam status	0	has not taken the Final
		1	has taken, but not passed the Final
		9	has taken and passed the Final
8th	Indicates Pre-Test status	0	has not taken the Pre-test
		1	has taken, but not passed the Pre-test
		9	has taken and passed the Pre-test
1st-7th	Indicates status within the 1st through 7th topics (within a Lesson)	0	has not looked at this topic at all, and if Pre-test has been taken, the topic was not passed on the Pre-test
		1-7	has looked at the Nth item (sub-topic) within the topic
		8	passed this topic on the Pre-test
		9	passed the exam on this topic or passed this topic on the Final (if the Final has been taken)

Table C-1   Interpretation of Bookmarks

Thus, for example, a bookmark of 10000839 would indicate that the student had

- Taken, but not passed the Pre-test (the 1 in the 8th digit)

- Taken and passed the first Lesson exam (the 9 in the 1st digit)

- Last viewed the 3rd topic in the 2nd Lesson (the 3 in the 2nd digit)

- Passed the 3rd topic when taking the Pre-test (the 8 in the 3rd digit)

A bookmark of 910000839 would have the same interpretation, except that the leading 9 indicates that the Final Exam has been passed.

A bookmark of 90000888 indicates the student passed the Pre-test, and hence completed the Lesson. The 8's show that the individual topics were passed on the Pre-test as well. We cannot tell if the student looked at any of the topic material, but we can tell that the student has not passed the individual topic exams. Otherwise, their entries would be 9's, not 8's.

APPENDIX D -- ADVANCED DATABASE OPTIONS

As was mentioned in Chapter 3, many of the screens in the TIS contain Edit and Record functions on their menu bars. These allow you to extract and manipulate the data in the database beyond the limited functionality of the TIS screens.

The Edit and Records functions are specific to database activities. To understand them, you must remember that the TIS is based on a set of data that resides in tables. You should think of these tables in much the same way as tabular data in a document. Each table consists of columns (fields) that contain a particular type of data. For example, a "Student" table might contain columns of Last Name, First Name, Social Security Number, and Position. A particular "row" in the table, which contains data for one student, is called a "record".

Under the Edit menu, there are numerous options for choosing records or editing fields. You may select any of the options that are bold. If an option appears in a lighter print, it is not available at that time[1]. The option Undo, reverses the most recent typing sequence to its previous state. Cut, Copy, Paste, and Delete may apply to selected text or to a whole record if it is the current context. To make the current record the object to use to perform an operation, click the cursor on the "record selector" triangle in the thin left margin of the screen or use the Select Record option under the Edit menu. In the example shown in figure D-1, one of the exam answer records has been selected[2].

To find a particular record, first put the cursor in the field that you will use as the find or locate criteria. Then select the Find option under Edit and choose the appropriate options for the find criteria entered. Only some fields allow a Find.

For example, in the screen in figure D-1, the Lookup is performed by student name. If for some reason you wanted to find the data for a particular student ID, you could place the cursor in the ID field and then choose Find from the Edit menu. The dialog shown in figure D-2 will appear to let you enter an ID and then search on it. Note that you can choose to look for partial matches. In the example shown, only a piece of the ID has been entered, and the user has chosen to search for its occurrence in "Any Part of Field". Thus the records that will be retrieved will contain the digits "0585" somewhere in the ID field.

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[1]   Your "role" may limit your ability to edit.
[2]   Of course editing "answer" records is not allowed.

Figure D-1   Selecting a Record

Figure D-2   A Find Dialog

Most of the functions in the Records menu perform basically the same functions that the top and bottom arrows perform on most TIS screens: first record, last record, etc. However, the filter/sort options provide some additional functionality.

To understand the Edit Filter/Sort option on the Records menu, you should first recognize that many of the TIS screens select a large set of data when you first enter the screen. In nearly all cases, this set is a join of two or more tables, sorted by some criteria such as name, ID, or date. Often a "filter" restricts the data, such as the "Make Permanent" function that only shows Lessons that are not set for permanent download.

The Edit Filter/Sort option allows you to edit the sorting and selection criteria used when the records are selected for display. The Apply Filter/Sort (also on the Records menu) applies the criteria previously entered, and all records that match the criteria may then be browsed. The following is an example of editing the sort and filter criteria.

As was stated earlier, the Student Answers screen is sorted first by student ID, although the Lookup field is sorted by name. Thus, if you go to the "first"[3] record, you will get data for the first (lowest value) ID. Subsequent records belong to that student. When one student's records have been exhausted, the first Course/Subject/Lesson for the next student (in ID) will begin.

It might be useful to produce a list sorted by Lesson, where you could go through all the students who had exams in each lesson consecutively. Choosing Edit Filter/Sort on the Records menu brings up the screen shown in figure D-3. The small box in the upper left shows the current "query" criteria in sort order. Here it is ID, followed by Course, Subject Order, etc.
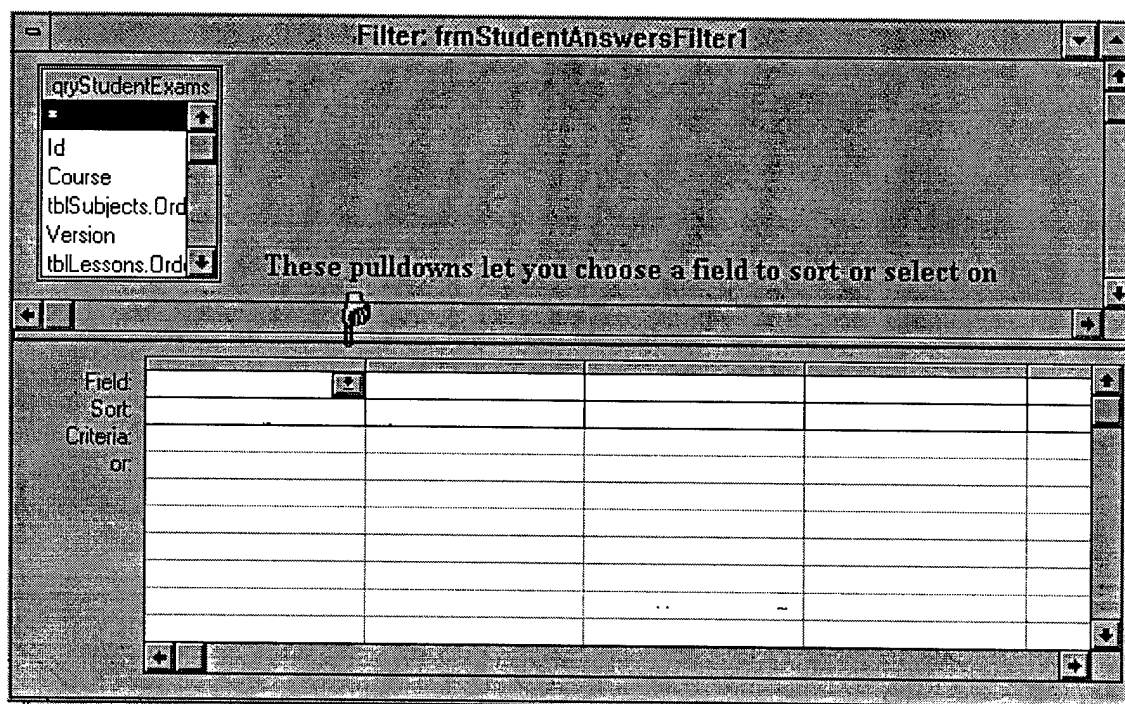

Figure D-3 An Edit Filter/Sort Dialog

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[3]   You get to the "First" record either using a function on the Records menu or using the navigation arrows at the top or bottom of the screen.

To change the sort order, the Field and Sort data can be edited in the boxes below. The pulldowns will list all the fields you can choose from. The "sort" line lets you choose ascending, descending, or none. By filling these out as shown in figure D-4, and then applying the sort, you can get the same data, but now it is grouped by Course/Subject/Lesson and then student ID.

Figure D-4   An Alternate Sort

A filter could be applied the same way. Figure D-5 shows the same data but now restricted to those exams that are in the "CC" (Common Core) Course.

Figure D-5   Filtering to the Common Core Course.

APPENDIX E -- SETTING UP TO USE CD'S ON A LAN

Although EMMii has been modified for the ARNG to allow at-home delivery of courseware via CD's, it is possible to use EMMii on a LAN with the CD courseware. Of course the student station has to be equipped with both a CD-ROM drive and a suitable network card. It must also have Windows for Workgroups installed, and be in the same workgroup as the other student stations and the host.

There are two possible approaches for configuring the student station software in this circumstance. The first is easier, and the second has more flexibility.

Using either approach it will be possible for different students to use the same machine to take one or more Lessons. The Student Station software will segregate the bookmarks and results in separate directories during execution, and post them to appropriate places in the database.

> If many students are using the same machine to take numerous lessons, it may be necessary to periodically "unload" Lessons if the hard disk becomes too full. There is a function in the Student Station S/W that will let you do this.

Approach 1 - Use the Main Database as the Student Database

The easiest way to use a student station on the LAN is to schedule students for CDROM (**not network**), and let the students login to the station just as they would at home.

What is different is the setup of the student station. Recall that in Appendix A, Section1 - Installing the Student Station Software - steps 4 and 6 involved using the ODBC to connect to the Host and the Student databases. To do this for a student station on a LAN connected to the Host machine[1], you should:

1. Mount the Host machine's disk where the TIS database is as the Z: drive. (See Section 3 of Appendix A.)

2. Select the TISTABLE.MDB on the Host machine to be both the Host database and the TIS database.

---

[1]   The Host machine is the "Manager PC" where the main database resides.

This has the effect of making the main database act as both the "local" database and the Host database. This means that whenever a student uses this student station, the schedule comes from the main database, and the results are automatically posted to the main database. **The student should not try to "Connect to Host" or "Post Results to Host"**, as these are unnecessary.

Approach 2 - Have a Separate Main Database and Student Database

You might want to use this approach if your LAN is not always available or if the student station is not always on the LAN. Once again, you should treat the student station on the LAN exactly as you treat an at-home station. In this case you should:

- Schedule students for CDROM (not network);

- "Prepare for Remote" (create a STUDENT.MDB);

- Copy the STUDENT.MDB to the student station[2]; and

- Let the students login to the station just as they would at home.

The ODBC setup is just as it is for an at-home station, with the "TIS" database pointing to STUDENT.MDB, and "Host" pointing to the TISTABLE.MDB on the Z: drive[3].

The only difference comes in posting results to the Host. First, the station should be connected to the LAN with the Host disk mounted as the Z: drive to perform the upload. (See Section 3 of Appendix A.) **The student should not try to "Connect to Host,"** as it is unnecessary. Then, when "Post Results to Host" is chosen, the data will be transferred out of the STUDENT.MDB to the TISTABLE.MDB.

One advantage to this approach is that the STUDENT.MDB can collect data from several students and post them all at once. This is useful if for some reason it is inconvenient to have the station connected to the Host continuously.

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[2]   Use the Student Station software to perform the copy operation. It will prevent you from overwriting a STUDENT.MDB that contains results not yet posted to the Host.

[3]   See Appendix A, Section1 - Installing the Student Station Software.